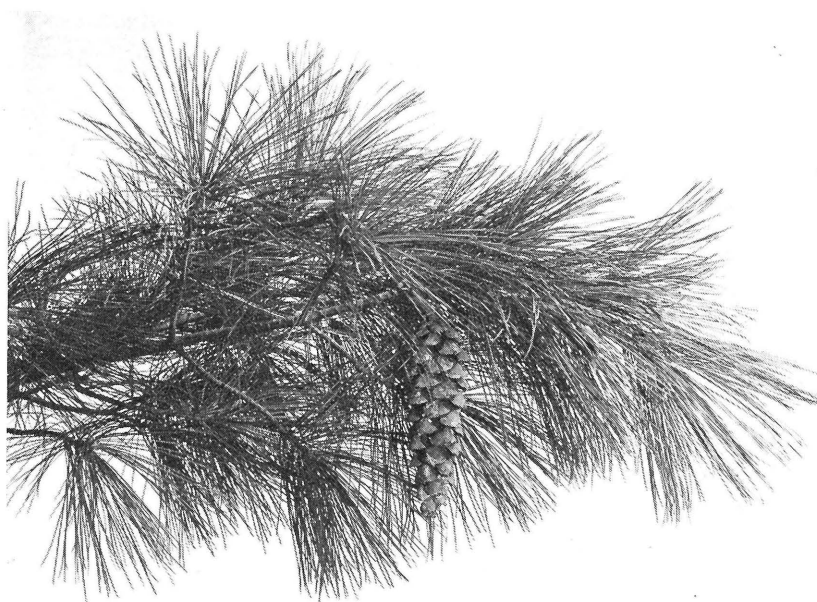


# **PERFORMANCE RECORDS OF WOODY PLANTS IN THE SECREST ARBORETUM**

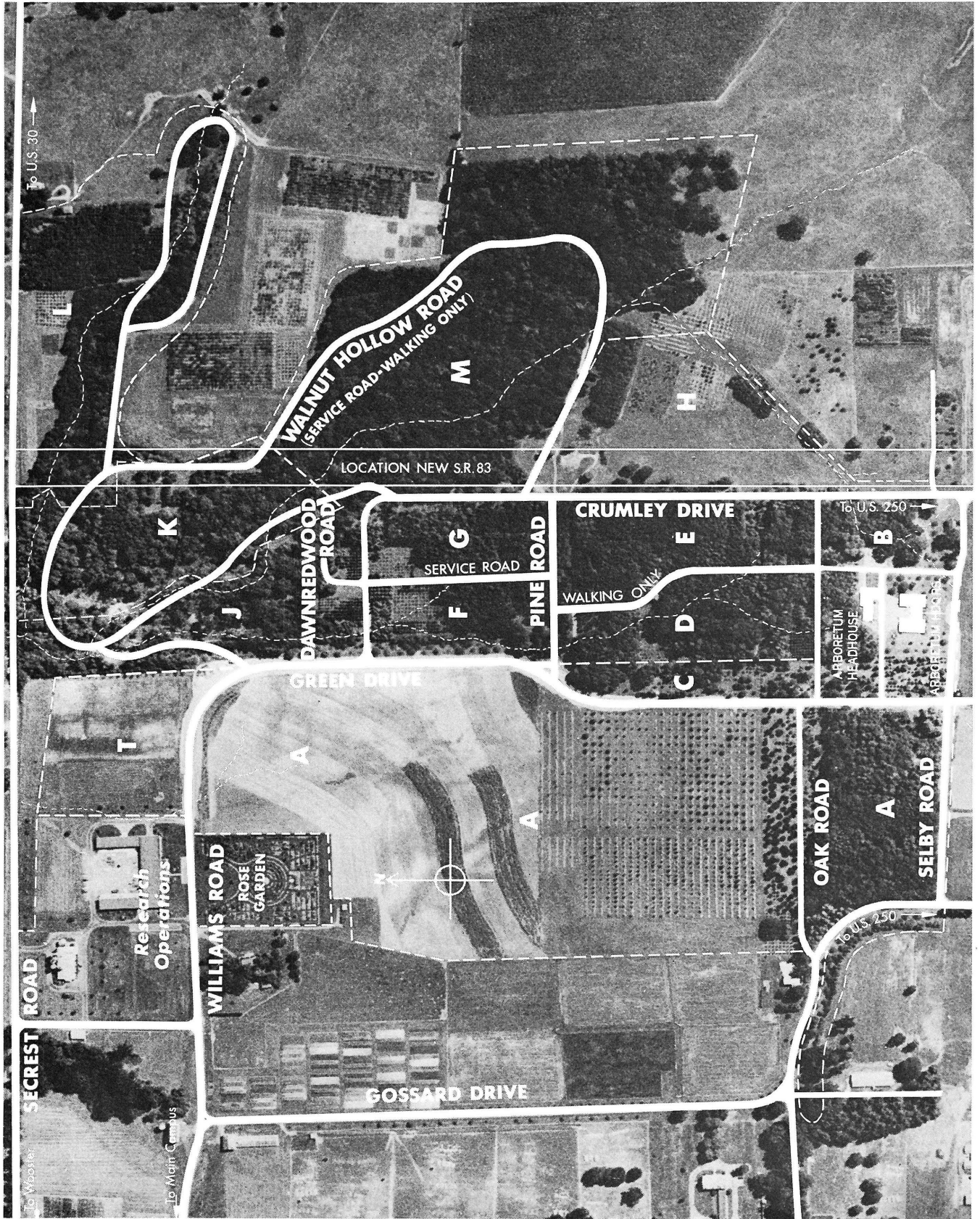
## **III. Pine Family: *Pinaceae***

JOHN E. FORD



**OHIO AGRICULTURAL RESEARCH AND DEVELOPMENT CENTER  
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Wooster, Ohio**

# KEY MAP TO COMPARTMENTS IN SECREST ARBORETUM





# PERFORMANCE RECORDS OF WOODY PLANTS IN THE SECREST ARBORETUM

## III. Pine Family: *Pinaceae*

JOHN E. FORD<sup>1</sup>

Curator, Secrest Arboretum

The first plantings of trees in the area which became the Secrest Arboretum were made in 1901 and 1903. Plantings were largely forest-type plantations as early interest was in testing potential timber and windbreak trees which would grow in Ohio. A few ornamental plantings were set out as early as 1909. More recent plantings have been largely ornamental types of trees or collections of related trees or shrubs.

Since many conifers are pioneer type trees in the ecology of the developing forest, it was natural to try many of the *Pinaceae* in forest plantations on open or bare land. The first pines outplanted were Eastern White Pine (*Pinus strobus*), Red Pine (*Pinus resinosa*), and Ponderosa Pine (*Pinus ponderosa*) in 1907. The first plantings of European Larch (*Larix decidua*) were made in 1903. Some species such as European Larch and Norway Spruce (*Picea abies*) were set in a nursery in 1906 but were not outplanted until 1909, when they were set out in mixed plantings. Starting in 1909, plantings of trees and shrubs have been made each year up to the present time.

Recent plantings have been largely set out on a 12-foot by 12-foot spacing. Many of the early forest plantations were set at various distances, from a 3-foot by 3-foot spacing to an 8-foot by 8-foot spacing, with the majority of the plantations set at 6-foot by 6-foot spacing. As plants have increased in size and required additional growing space, adjacent plants have often been removed, although in some cases no thinning has been attempted. Ornamental plants are occasionally pruned when outplanted, with little future pruning except to remove dead, broken, or disease-infected branches. Ornamental types of plants have been allowed to develop into their natural shapes except when growing around buildings where they would soon outgrow their place. Some forest plantations have had their lower limbs pruned off to develop knot-free clear boles or stems.

Compartments J and K were pastured until 1911. Many plantings in these compartments were actually underplantings under large residual hardwoods. Few underplantings of coniferous trees were successful. Compartments A through H were bare

land when planted and plantings in these areas had no overhead competition from established hardwoods. Compartment M is largely native woodlands with only sporadic underplantings.

Surface fires in 1916 destroyed some of the plantations in Compartments J and K shortly after they were established. Early attempts to control underbrush included discing between planted trees. Recent attempts included periodic mowing with a rotary blade brush mower. This resulted in numerous dense sprouting which contrasts quite markedly with Compartments J and K where no mowing was ever attempted. These compartments have more scattered underbrush. Mechanical means of brush control have resulted in many trees being damaged with resulting wood decays in the injured roots and butts. Some recent control of underbrush has been accomplished with the use of silvicides.

There are presently more than 2,000 different species, varieties, hybrids, or cultivars of woody plants growing in the Secrest Arboretum. These represent more than 200 genera in some 70 families. More than 45,000 individual coniferous plants have been outplanted. There are 177 different types of *Pinaceae* representing eight genera currently growing in the Arboretum. These are *Abies* Mill., the firs; *Cedrus* Trew, the cedars; *Larix* Mill., the larches; *Picea* Dietr., the spruces; *Pinus* L., the pines; *Pseudolarix* Gord., Golden Larch; *Pseudotsuga* Carr., Douglasfir; and *Tsuga* (Endl.) Carr., the hemlocks.

Proper interpretation of the records is essential. Plants which succeed or fail in the Arboretum might do differently in other situations or locations. Growth hinges largely on the basic factors of habitat and microclimate. Thus, local environmental conditions are most significant. The loss of a plant may be due to a number of factors such as exposure, drainage, size of plant, season planted, disease, insects, animals, mechanical injury, use of weed killers, and damage from visitors. Trees have been severely damaged or lost through the action of animals. Woodchucks have on occasion girdled or severely damaged the bark at the bases of trees. Mice have girdled plants, especially extensive solid plantings of pines growing in tall grass. Rabbits have severely cut small ever-

<sup>1</sup>William Mitten, Agricultural Aide II, and Dennis Risser, student laborer, assisted in making field measurements.

greens such as pines during the winter. Chipmunks and moles have tunneled under small plants, cut roots, and exposed roots to drying out. Established plants will often survive climatic extremes, while recently planted trees may be killed.

Many plants require two or three growing seasons to reestablish themselves after transplanting. Some recently planted trees presently rated as only being in fair condition would undoubtedly receive a rating of good condition in another year or two.

### ENVIRONMENT

The Secrest Arboretum contains more than 85 acres (34 ha) of diversified terrain ranging from areas fairly level to areas with considerable slope. Aspect,

moisture, and related site conditions are considerably varied. Elevations are from 1,000 to 1,100 feet (300 to 330 m) above sea level. The predominant soil type is Wooster silt loam which was derived from glacial till. The soil is moderately acid. The mean annual precipitation is 37 inches (94 cm).

Extremes of temperature have varied from  $-24^{\circ}\text{F.}$  ( $-31^{\circ}\text{C.}$ ) in 1912 to  $105^{\circ}\text{F.}$  ( $41^{\circ}\text{C.}$ ) in 1918. The Arboretum is located in Plant Hardiness Zone 5, where annual minimum temperatures average between  $-20^{\circ}\text{F.}$  ( $-29^{\circ}\text{C.}$ ) and  $-10^{\circ}\text{F.}$  ( $-23^{\circ}\text{C.}$ ) The coldest most recent temperature was  $-20^{\circ}\text{F.}$  ( $-29^{\circ}\text{C.}$ ) in 1963. Extremely fluctuating temperatures in January and February 1972 caused a considerable amount of damage to plants in the Ar-



Forest-type plantings in Secrest Arboretum.

boretum. There were several periods when January thaws with temperatures between 40° F. (4° C.) and 50° F. (10° C.) were followed within a week's time by temperatures falling to zero or below. The most extreme fluctuation came in January 1972, when a maximum temperature of 60° F. (16° C.) was followed 3 days later by a minimum temperature of -12° F. (-24° C.)

Periodically extreme winds have caused considerable damage to trees. This is especially true when the soil is saturated with water. Exposed shallow rooted trees, particularly conifers, are liable to wind-fall. Destruction of 212 trees of 26 different species resulted from a 70-mile-an-hour gale on March 22, 1955. In April 1956, severe winds brought additional losses. On April 19, 1963, 426 trees representing 39 species were shattered, root sprung, or overthrown by a violent storm. A severe localized Spring wind and rainstorm in 1970 destroyed 60-year-old plantings of spruce, hemlock, and pine. A wind-

storm with winds above 80 miles per hour on July 9, 1972, cut a swath 200 feet wide across the OARDC campus and into the Arboretum, uprooting and twisting off 56 trees which were destroyed or so badly damaged they had to be removed. An additional 33 trees were severely damaged.

Snow and ice have also destroyed many trees. Infrequent glaze storms, as in 1938, have wrought havoc. Three times within the past 50 years, heavy, wet snows have caused damage. The most recent of these was a 22-inch wet snow on Dec. 1 and 2, 1974. Many White Pine, Ponderosa Pine, and Scots Pine (*Pinus sylvestris*) in 50 and 60-year-old plantations were broken off and destroyed. One 20-year-old planting of Canada Hemlock (*Tsuga canadensis*) had half of the plantation destroyed through breakage.

As the Arboretum is on high ground, lightning strikes are common and half a dozen trees are struck each year. These are usually the tallest trees in the plantings.



**Wind damage in White Pine plantation. Trees broken off and uprooted during severe windstorm.**



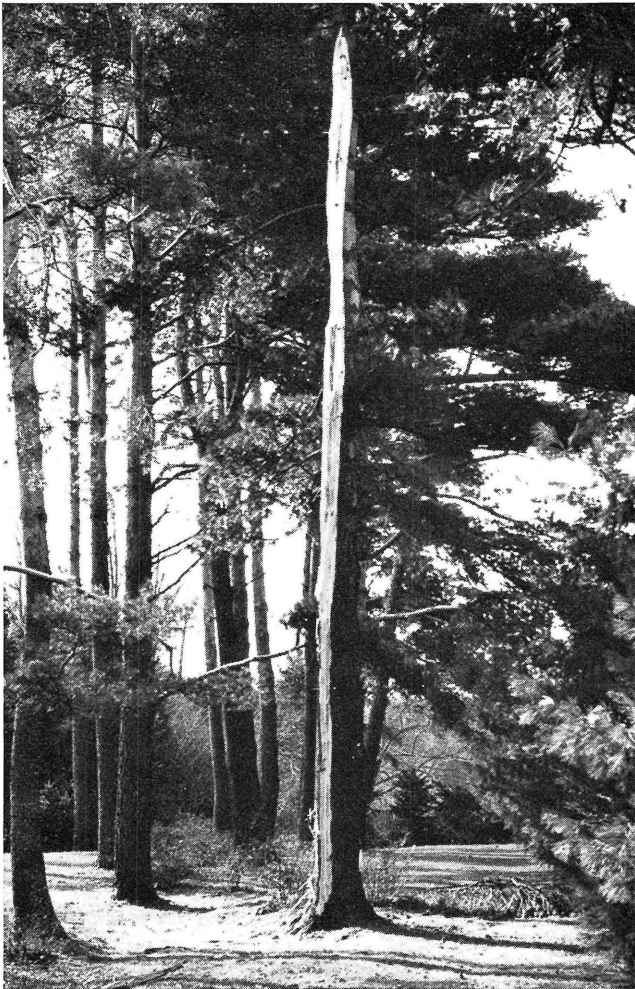
## PLANT DESCRIPTIONS

Plants are listed alphabetically by genera and species. Common and botanical nomenclature follows the Manual of Cultivated Conifers (1), Textbook of Dendrology (2), and Check List of Native and Naturalized Trees of the United States (3). See page 59 for listing of references.

A number of symbols and abbreviations have been used to describe the history and present status of each plant.

**Source:** The letter S and numeral following the name of a listed plant is the source where plants were obtained. See Source List on page 60.

**Location:** The second letter and numeral following the name of a listed plant is the plot location or compartment where the plant was set out.



**Large White Pine struck by lightning.** Splinters were found up to 200 feet from tree. Three to five trees (usually the largest in the stand) are struck by lightning every year in the Arboretum.

A through T—see map inside front cover.

O—other plantings. Includes ornamentals on campus and around buildings at the Ohio Agricultural Research and Development Center.

**Number of Plants Set Out:** The numeral in parentheses following plot location is the number of plants set out.

**Year Planted:** The year the plants were set out follows the number of plants set.

**Planting Stock:** The age and description of planting stock set out is indicated by two numerals separated by a hyphen. The first numeral is the number of years growing in the nursery seedling bed. The second numeral is the number of years in the nursery transplant bed. Thus 2-2 is a 4-year-old plant 2 years in the seedling bed, transplanted at 2 years to a transplant bed where it remained growing for an additional 2 years.

**Spacing:** The spacing at which forest plantings were set out is indicated. 6' x 6' indicates the original spacing was 6 feet by 6 feet.

### Status:

(—)—Plant in poor condition

(+)—Plant in fair or average condition

(++)—Plant in good or above average condition

'—Indicates feet

"—Indicates inches

(1)—Numeral in parentheses indicates number of plants remaining

1973—Year indicates when observation was made

DBH—Diameter Breast High, a point 4½ feet above the ground

F—Failed due to:

Fa—animals

Fc—local climatic extremes

Fd—diseases

Fi—insects

Fm—mechanical injury (mowed off, broken off by vehicle, etc.)

Fp—planting (too small, wrong season, etc.)

Fs—site (unfavorable site factors)

Fw—wind, snow or ice breakage

h—height of plant

NP—Not present

Re—Removed to develop Arboretum or for other reasons

Ts—Transplanted

V—Volunteers (usually indigenous) growing in Arboretum

W—Width or spread of plant

Example of meaning of lettering and symbols following a plant name:

S99. J16. (16) 1957, 2-4 planting stock, set 10' x 10'. (16) 1970.

Status: (+ +) 4" DBH; 17' h. (15) 1974.

### ABIES: FIR

Twenty-nine different types of fir have been outplanted, including 22 species and 7 varieties or cultivars. Twenty different types are currently growing in the Arboretum. Except for ornamental type plantings on the OARDC campus, the majority of fir plantings have been on sites which are wet at least part of the time and especially during periods of rainy weather. Firs on wet sites exposed to winds have been subject to frequent breakage or windthrow during severe windstorms. In general, firs have grown very poorly when underplanted beneath existing stands of timber as they have not been able to compete with natural hardwood underbrush.

*Abies alba* Mill.

#### Silver Fir

In general the best growing Silver Fir in the Arboretum is on better drained sites, protected from wind, and with ample room for development. Poor growth was made on excessively wet sites, when exposed to severe winds, when underplanted, when not thinned or left without sufficient growing room. The largest, best-formed Silver Fir in the Arboretum is 59 years old and was grown in the open as an ornamental specimen. It is the only remaining Silver Fir in the Arboretum which is in excellent or above average growing condition.

S9. C1. (17) 1909, 9", set 6' x 6'. (14) 1933. (8) 1954. (1) Windthrown 1963. (1) Fw 1974, tallest trees struck by lightning. Site wet and exposed to winds. Roots have been damaged by mowing. Ground cover is mowed grass.

Status: (+) 10"-14" DBH; 36'-60' h. (4) 1975.

S9. C3. (1) 1909, 14". Very severe winter, temperatures to -14° F. 1958.

Status: Fc, Fs 1958.

S49. J42. (105) 1914, 15", 2-3 planting stock. (70) 1930. Made thinning 1939. (15) 1954.

Status: Re 1966.

S49. F5. (49) 1915, 10", 2-4 planting stock, set 6' x 6'. Wet site.

Plants obtained OARDC, Secret Arboretum. Sixteen plants set out in plot J16 in 1957. Six-year-old transplants used, plants 2 years in seedbed and 4 years in transplant bed. Set at 10-foot by 10-foot spacing. Sixteen plants present when checked in 1970. Plants in excellent condition, average 4 inches in diameter 4½ feet above ground, 17 feet high, and 15 plants present when checked in 1974.

To convert measurements to metric system, see conversion tables on page 59.

Plantation Age	DBH	Height	No. of Trees	Year
11	2"	10'	44	1926
17	3"	17'	44	1931
21	3"	21'	44	1936
24			39	1939
29	4"	29'	34	1944
35			4	1950

Thinning in 1939 removed 5 trees. Blown down by severe winds 1955.

Status: Fw 1955.

S49. K9. (380) 1915, 12", 2-5 planting stock. (337) 1930. Underplanted under large natural hardwoods. Firs under openings in the overstory have outgrown those in under spread of large oaks. Undergrowth of Red Oaks, Black Cherry to 6' h. Status: (—) 2"-8" DBH; 6'-30' h. (43) 1975.

S9. B1. (1) 1916. Specimen planting. Ground cover is mowed grass.

Status: (+ +) 16" DBH; 60' h. (1) 1975.

S9. O. (2) 1917, 2-8 planting stock. Lawn planting. Status: (+) 10", 17" DBH; 55', 76' h. (2) 1975.

S50. O. (140) 1934, 3-0 planting stock. (48) 1940. Christmas tree planting.

Status: Re 1948.

Suk. F3. (2) 1956. Site wet except during dry summers. Competition from adjacent hemlocks. (1) 1968. Ground cover is mowed grass.

Status: (+) 5' h. (1) 1975.

#### *Abies alba* 'Green Spiral'

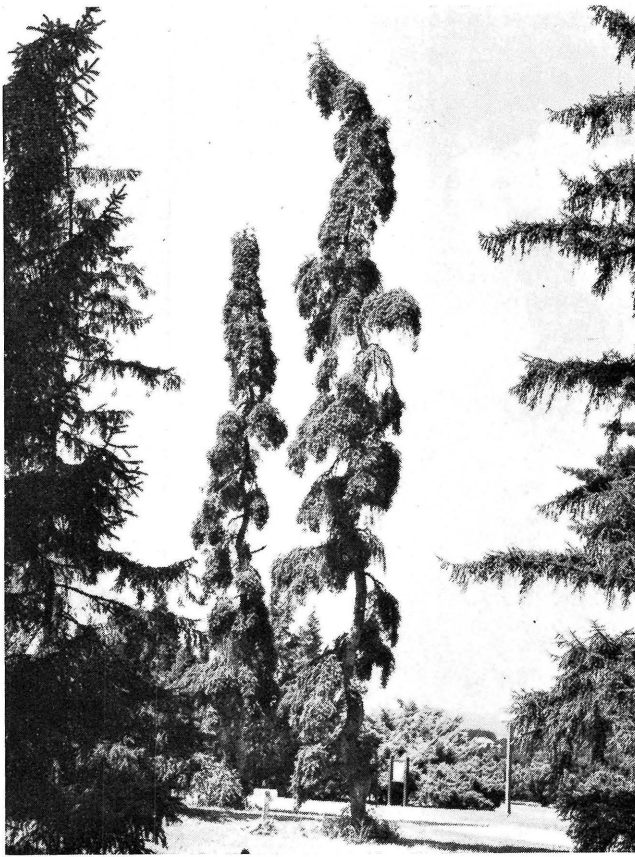
##### Green Spiral Silver Fir

These trees had previously been identified as *Abies alba* 'Tortuosa', Twisted Silver Fir. In 1973 this fir was determined to be an unnamed cultivar of *Abies alba* and was named Green Spiral.

S9. B1. (3) 1916, (3) 1929, (2) 1955. Ground cover is mowed grass. Foliage winter burned 1959 -14° F.

Status: (+) 8" DBH; 37', 39' h. (2) 1975.

S133. F16. (8) 1974, 4 yr. grafts from trees in B1. Site wet. Plants are prostrate. Flattened to



**Green Spiral Silver Fir.**

ground by 22" snowfall Dec. 1974. Ground cover is mowed grass.

Status: (+) 6"-12" long. (8) 1975.

***Abies alba* 'Pyramidalis'**

**Sentinel Silver Fir**

S9. C1. (5) 1916, 8". Site exposed to wind. (4) 1933. (4) 1954. (2) 1968. Competition from adjacent trees 1970. Ground cover is mowed grass. Status: (+) 3", 7" DBH; 11', 28' h. (2) 1975.

S68. F3. (2) 1953, 3'. Site wet. Ground cover is mowed grass.

Status: (+) 5" DBH; 24' h. (2) 1975.

***Abies amabilis* (Dougl. ex Loud.) Forb.**

**Pacific Silver Fir**

Suk. H. 1925.

Status: Fc, Fs 1926.

***Abies balsamea* (L.) Mill.**

**Balsam Fir**

Balsam Fir has not grown well in the Arboretum as an ornamental or in forest plantings.

S53. F6. (56) 1915, 2-4 planting stock set 6' x 6', 18" h.

Plantation Age	DBH	Height	No. of Trees	Year
11	2"	12'	50	1925
15			47	1930
17	3"	18'	45	1931
22	3"	22'	41	1936
29	4"	29'	27	1944
39			4	1954

Thinned in 1939. Severe winter damage 1949. Blowdown by severe winds 1955.

Status: Fw 1955.

S65. A10. (60) 1925, set 12' x 12'. Ground cover is mowed grass. (14) 1933. (2) Re 1970. Suppressed trees, overtopped by adjacent hardwoods. (4) 1973. (3) 1974, (1) Re. Suppressed.

Status: (+) 5"-7" DBH; 30'-40' h. (3) 1975.

S64. O. (1) 1925.

Status: Re 1948.

S85. B4. (60) 1956. Replanted (34) 1957.

Status: Ts to Southeastern Test Farm, 1958.

S99. C1. (2) 1957. Site wet, poorly drained. Ground cover is mowed grass.

Status: (+) 3', 8' h. (2) 1975.

S99. J18. (17) 1957, set 10' x 10'. (17) 1970. Site wet, poorly drained. Largest tree in 1975 is 5" DBH, 28' h.

Status: (+) 4" av. DBH; 20' av. h. (17) 1975.

S99. F3. (2) 1961. Site wet. Ground cover is mowed grass.

Status: (+) 4", 5" DBH; 14', 24' h. (2) 1975.

***Abies bornmuelleriana* Mattf.**

**Bornmueller Fir (NA 30158)**

S130. C1. (1) 1973, 4 yr. container-grown seedling, 12" h. Ground cover is mowed grass.

Status: (+) 14". (1) 1974.

***Abies cephalonica* Loud.**

**Greek Fir**

A number of Greek Fir seedlings are continually seeding in under forest-type plantations when ground is free of competing vegetation.

S9. F8. (35) 1917, 3-1 planting stock set 6' x 6', 14" h. Site wet except during summer.

Plantation Age	DBH	Height	No. of Trees	Year
11		4'	30	1927
15	1"	8'	30	1931
19	2"	12'	28	1936
27	4"	21'	27	1944

Blowdown from severe winds 1955.

Status: Fw 1955.

S9. F13. (30) 1918, 3-2 planting stock set 6' x 6', 12" h. Site wet except during dry summers, poorly drained.



Plantation Age	DBH	Height	No. of Trees	Year
14	2"	9'	24	1931
18	3"	15'	24	1936
26	5"	24'	24	1944
52			12	1970
56	10"	50'	12	1975

Blowdown from severe winds 1955. In 1975 largest tree is 18" DBH, 70' tall. Natural seeding under and adjacent to stand.

Status: (+) 5"-18" DBH; 16'-70' h. (12) 1975.

S68. F3. (2) 1953, 30" h. Site wet except during dry summers. One tree is overtopped by adjacent hemlock.

Status: (+) 3", 7" DBH; 18', 30' h. (2) 1975.

*Abies cilicia* (Ant. & Kotschy) Carr.

#### Cilician Fir

A few natural seedlings are occasionally found under forest-type plantations.

S9. O. (10) 1917, 3-1 planting stock. (1) Failed suppression 1970.

Status: (+) 7"-14" DBH; 55'-65' h. (9) 1975.

S9. B1. (2) 1918, 3-2 planting stock, 12" h. Ground cover is mowed grass.

Status: (+ +) 17" DBH; 51', 54' h. (2) 1975.

S9. F10. (49) 1918, 3-2 planting stock set 6' x 6', 12" h. Site wet except during summer.

Plantation Age	DBH	Height	No. of Trees	Year
10	1"	7'	48	1927
14	2"	12'	48	1931
19	3"	19'	48	1936
27	5"	31'	38	1944
52			8	1970
56	14"	55'	8	1974

Removed 6 trees in thinning 1938. Windthrow severe windstorm 1948. In 1975 largest tree is 14" DBH, 63' tall.

Status: (+) 11"-14" DBH; 50'-63' h. (8) 1975.

*Abies concolor* (Gord.) Ldl. ex Hildebr.

#### White Fir

Seventeen separate plantings of White Fir have been made since 1913. Trees planted as ornamentals have grown well when allowed sufficient room in which to develop. When planted on exposed sites, many trees have been broken off or windthrown during severe windstorms.

S1. C3. (1) 1913.

Status: Re 1965.

S1. O. (1) 1913. Lawn planting.

Status: (+ +) 19" DBH; 55' h. (1) 1975.

S1. O. (3) 1913. Site open and well drained. (2) 1968. Lawn planting.

Status: (+ +) 14", 15" DBH; 58', 64' h. (2) 1975.

S1. O. (1) 1913. Lawn planting.

Status: (+) 16" DBH; 55' h. (1) 1975.

S1. O. (1) 1913. Lawn planting.

Status: (+) 14" DBH; 51' h. (1) 1975.

S1. O. (2) 1913.

Status: Re 1963.

S1. O. (6) 1913. (3) 1970, (3) Fw, severe winds. (2) 1972, (1) Fw, severe winds.

Status: (+ +) 17", 26" DBH; 55' h. (2) 1975.

S1. F4. (56) 1915, 2-2 planting stock set 6' x 6', 10" h. Site very wet in Spring and during heavy rains.

Plantation Age	DBH	Height	No. of Trees	Year
11	1"	8'	46	1926
17	2"	12'	46	1931
21	3"	16'	46	1936
29	3"	23'	36	1944
33			7	1948

Removed 7 trees in thinning 1938. Blowdown, severe winds 1948.

Status: Fw 1950.

S1. O. (1) 1931.

Status: Re 1949.

S1. C3. (24) 1933, 22 yr.-old plants. (12) 1955. High winds 1963.

Status: Fw 1963.

S85. C1. (2) 1953. (1) 1957. Replanted (1) 1961. Site wet. Ground cover is mowed grass.

Status: (+ +) 2", 4" DBH; 7', 16' h. (2) 1975.

S119. O. (1) 1955. Ts (1) 1964. Lawn planting. Status: (+ +) 17" DBH; 41' h. (1) 1975.

S85. J16. (16) 1957, 2-4 planting stock set 10' x 10'. Wet, poorly drained site. (16) 1970. Closed plantation 1975.

Plantation Age	DBH	Height	No. of Trees	Year
1			16	1957
18	4"	17'	15	1975

Largest tree is 6" DBH, 20' tall.

Status: (+ +) 1975.

S85. H8. (50) 1957, 2-4 planting stock set 4' x 4'. Christmas tree planting.

Status: Re 1961.

S85. F3. (2) 1961, 2-7 planting stock. Site wet Winter and Spring. (2) 1970.

Status: (+ +) 20' h. (2) 1975.

S85. O. (1) 1964, 2-7 planting stock. Removed due to change in landscaping.

Status: NP 1968.

S85. J40. (2) 1970, 6' h. moved with tree spade from nursery. Set in nursery 1967. Ts to mixed evergreen windbreak.  
Status: (+ +) 3" DBH; 14' h. (2) 1975.

***Abies concolor* 'Violaceae'**

**Purplecone White Fir**

S16. H. (2) 1934. Ts (2) 1936. Ts (1) 1942.  
Status: NP 1968.

***Abies firma* Sieb. & Zucc.**

**Momi Fir, Japanese Fir**

S11. C1. (1) 1917. (1) 1954.  
Status: Fc 1960.

S99. O. (4) 1918. (2) Re 1948. Has survived temperatures to  $-20^{\circ}$  F.

Status: (—) 10", 17" DBH; 53', 64' h. (2) 1975.

S9. F11. (37) 1918, 2-2 planting stock set 6' x 6', 20" h. Site wet except during summer. (2) 1928. (1) 1970.

Status: (+ +) 19" DBH; 60' h. (1) 1975.

S50. O. (6) 1938, 2-2 planting stock. (1) 1940.  
Status: NP 1947.

S68. F3. (2) 1953, 30" h. (1) 1954. (1) 1970.  
Has survived temperatures to  $-20^{\circ}$  F.  
Status: (+) 6" DBH; 25' h. (1) 1975.

***Abies fraseri* (Pursh) Poir.**

**Fraser Fir, Fraser Balsam Fir**

Has grown quite poorly in Arboretum, both as ornamental and in forest plantings. Underplantings eventually suppressed by hardwoods.

S9. C3. (25) 1910, 7" h. (7) 1933. (1) 1955. Site dry and exposed to severe winds.  
Status: Fs 1955.

S65. F7. (56) 1917, 2-3 planting stock set 6' x 6', 12" h. Site wet except during summer.

Plantation Age	DBH	Height	No. of Trees	Year
5			49	1922
11	1"	8'	48	1927
15	2"	13'	47	1931
19	3"	17'	46	1936
27	4"	22'	40	1944
37			7	1954

Removed one row of trees 1922. Removed 5 trees in thinning 1938. Severe frost cracks 1949. Blow-down, severe winds 1955.

Status: Fw 1955.

S65. O. (27) 1917. (22) 1933. Suppressed by hardwoods.  
Status: Fs 1958.

S65. K28. (150) 1919, 3-2 planting stock, underplanted in hardwood stand. (134) 1930. (10)

1954. Suppressed by hardwoods.

Status: Fs. NP 1968.

S65. J29. (70) 1919, 2-3-2 planting stock set 5' x 8', 12" h. (47) 1930, (4) 1954. Suppressed by hardwoods.

Status: Fs 1956.

S65. K11. (50) 1919, 2-3-2 planting stock, 12" h. Underplanted in open, natural stand of Red and White Oaks. Set with blueberry bushes. (45) 1930, (4) 1954. Suppressed. (Blueberries also died out.)

Status: Fs 1960.

***Abies fraseri* and *Pseudotsuga menziesii***

**Fraser Fir and Douglasfir**

S92. A28. (90) 1920, 2-4 planting stock set in alternate rows 6' x 6', set 45 of each species. Present ground cover is mowed grass.

Plantation Age	DBH		Height		No. of Trees		Year
	FF	DF	FF	DF	FF	DF	
11					43	43	1930
12	2"	3"	14'	16'	36	43	1931
17	3"	4"	18'	24'	29	43	1936
18	3"	5"	19'	26'	24	43	1938
56		12"		46'		1	1975

All Fraser Fir suppressed and dead by 1947. Douglasfir removed in 1956 except 1 tree. In 1975, tree leaning, roots exposed and damaged by mowing.

Status: Fraser Fir: Fs 1947.

Douglasfir: (—) 12" DBH; 46' h. (1) 1975.

***Abies fraseri***

**Fraser Fir**

S113. H. (100) 1925, set 5' x 5', 9" h. Christmas tree planting.

Status: Re 1933.

S113. B4. (60) 1956. (17) Replanted 1957. (60) Ts Southeastern Branch 1958.

Status: Ts 1958.

S85. C1. (2) 1957. Ground cover is mowed grass.  
Status: (+) 3", 4" DBH; 15', 17' h. (2) 1974.

S85. J19. (16) 1957, set 10' x 10'. (16) 1970.

Plantation Age	DBH	Height	No. of Trees	Year
1			16	1957
18	3"	13'	16	1975

Three trees had tops cut out. Six trees have been replacements.

Status: (+) largest tree 5" DBH; 18' h. (16) 1975.

*Abies grandis* (Dougl. ex D. Don) Ldl.

**Grand Fir**

S9. K11. 1917. Winter of 1935-36 very severe.  
Status: Fc 1936.

S9. K28. 1917. Winter of 1935-36 very severe.  
Status: Fc 1936.

Suk. H. 1924. Winter of 1935-36 very severe.  
Status: Fc 1936.

*Abies holophylla* Maxim.

**Manchurian Fir**

S70. H. (8) 1932, 2-4 planting stock. (8) 1940, 6' h.  
Status: NP 1958.

S70. F20. (24) 1932, 2-4 planting stock. (17) 1970.  
Wet, poorly drained site.

Plantation Age	DBH	Height	No. of Trees	Year
1			24	1932
36			17	1968
43	7"	38'	16	1975

One tree broken, tops of two additional suppressed trees broken out by heavy, wet 22" snowfall Dec. 1974.

Status: (—) largest tree 12" DBH, 50' h. 1975.

S131. F19. (2) 1938. Wet, poorly drained site.  
Status: Fs 1948.

S130. C1. (1) 1973, 5 yr. container grown, 23" h.  
Ground cover is mowed grass.  
Status: (+) 30" h. (1) 1975.

*Abies homolepis* Sieb. & Zucc.

**Nikko Fir**

S99. B1. (1) 1918. Site well protected from winds.  
Has survived temperatures to -20° F. Ground cover is mowed grass.  
Status: (+ +) 20" DBH; 62' h. (1) 1975.

S11. F14. (24) 1925, 2-6 planting stock set 6' x 6'.  
Site wet during rainy periods.

Plantation Age	DBH	Height	No. of Trees	Year
7		5'	18	1931
12	2"	11'	18	1936
45			6	1970
50	11"	58'	6	1975

Blowdown by severe winds 1955. Tops of two trees broken out by heavy, wet 22" snowfall Dec. 1974.

Status: (+) largest tree 15" DBH; 64' h. 1975.

S11. B1. (1) 1925, 2-6 planting stock. Very severe winter 1958.  
Status: Re 1958.

S68. F3. (2) 1953, 30" B&B. Ground cover is mowed grass.

Status: (+ +) 6", 8" DBH; 30', 32' h. (2) 1975.

S124. C1. (1) 1968, 17' B&B. Site exposed to winds.  
Ground cover is mowed grass.  
Status: (+) 6" DBH; 26' h. (1) 1975.

*Abies homolepis umbellata* (Mayr.) Wils.

**Dimplecone Nikko Fir**

S11. C1. (1) 1918. High winds in 1955 damaged tree.  
Status: Re 1955.

*Abies koreana* Wils.

**Korean Fir**

S70. F19. (3) 1939, 2-8 planting stock. (2) 1950.  
Blown over by severe winds in 1963.  
Status: Fw 1963.

S70. F11. (3) 1939, 2-8 planting stock. (1) 1964.  
Site wet during rainy periods.  
Status: NP 1968.

S70. H. (1) 1942, 15-year-old plant.  
Status: NP 1958.

S130. C1. (1) 1973, 5-yr. container grown, 22" h.  
Ground cover is mowed grass.  
Status: (+) 30" h. (1) 1975.

S131. C1. (3) 1974, 5-yr. container grown, 20"-23" h.  
Ground cover is mowed grass.  
Status: (+) 20"-24" h. (3) 1975.

*Abies lasiocarpa* (Hook) Nutt.

**Subalpine Fir, Rocky Mountain Fir**

S9. O. (2) 1909.  
Status: Fw 1916.

Suk. F16. (3) 1936. (1) 1942. Blown over by wind, -20° F. 1963.  
Status: Fw 1963.

*Abies lasiocarpa* var. *arizonica* (Merr.) Lemm.

**Corkbark Fir**

S9. C4. (1) 1916, 8" h. Blown over by wind, -20° F. 1963.  
Status: Fw 1963.

*Abies magnifica* Murr.

**California Red Fir**

Suk. F19. (3) 1924. Site wet, poorly drained, exposed to winds.  
Status: Fs 1934.

*Abies mariesii* Mast.

**Maries Fir**

S139. F17. (6) 1932, 2-4 planting stock. (3) 1942. (3) 1970. Site wet during rainy periods. Ground cover is mowed grass.  
Status: (+) 8"-12" DBH; 45'-48' h. (3) 1975.





**Nordmann Fir growing in forest plantation. Site very wet. There has been considerable natural seeding underneath this stand.**

S139. F11. (3) 1938. (1) 1963. Site wet during rainy periods.  
Status: NP 1968.

***Abies nephrolepis* (Trautv.) Maxim.  
Khingan Fir**

S70. F18. (5) 1932, 6-0 planting stock. (4) 1942.  
(3) 1951. Blowdown severe winds in 1963.  
Status: Fw 1963.

S70. H. (8) 1939, 9-6 planting stock. (5) 1940.  
Status: NP 1958.

S131. C1. (1) 1973, 3-yr. container grown, 8" h.  
Ground cover is mowed grass.  
Status: (+) 12" h. (1) 1974.

***Abies nordmanniana* (Stev.) Spach  
Nordmann Fir, Caucasian Fir**

Nordmann Fir is one of the few firs in the Arboretum seeding in under forest-type plantings. Once established, this fir is growing as well as or better than any other fir in the Arboretum, both as an ornamental and in forest-type plantings.

S53. B2. (1) 1910. Removed for power line.  
Status: Re 1958.

S53. O. (1) 1910. Blowdown severe windstorm in 1972.  
Status: Fw 1972.

S80. C1. (11) 1917. (11) 1929. Removed to make room for other plantings.

Status: Re 1952.

S80. B1. (1) 1917. Removed in thinning.

Status: NP 1942.

S9. B1. (3) 1918, 2-2 planting stock. (1) 1962, (2) Re, thinning.

Status: (+ +) 18" DBH; 65' h. (1) 1975.

S9. F12. (49) 1918, 2-2 planting stock, set 6' x 6'.  
Site wet during rainy periods.

Plantation Age	DBH	Height	No. of Trees	Year
10		4'	45	1927
14	1"	8'	45	1931
18	3"	13'	45	1936
26	4"	22'	44	1944
52			18	1970
57	8"	50'	18	1975

Windthrown from severe winds 1955. Numerous self-seeded reproduction under this plot and adjacent plots.

Status: (+ +) largest tree 12" DBH and 56' h. 1975.

S99. C1. (2) 1964.

Status: (+ +) 10' h. (2) 1975.

S99. F19. Natural seedlings collected from F12. (12) 1969, 3-2 planting stock, 12" h. Site poorly drained, very wet in spring.

Status: (+) 14"-32" h. (12) 1975.

***Abies numidica* De Lannoy ex Carr.  
Algerian Fir**

Suk. B. 1924. Extremely windy site.

Status: Fs 1926.

***Abies pinsapo* Boiss.  
Spanish Fir**

S9. O. (2) 1909, 8" h. Protected site. Survived temperatures to -24° F. Understory trees.

Status: (+) 8", 18" DBH; 13', 20' h. (2) 1975.

Suk. B. 1924. Exposed, windy site.

Status: Fs 1926.

***Abies procera* Rehd.  
Noble Fir**

S9. C3. (2) 1909, 18" h. (1) 1929, (1) Fs. Both plants suppressed.

Status: Fs 1955.

S119. F3. (2) 1955. (1) 1955, (1) Fc. Froze after planting from late spring freeze.

Status: Fc 1956.

S11. C1. (1) 1955. Froze after planting from late spring freeze.

Status: Fc 1955.

*Abies procera* 'Glauca'

**Blueleaf Noble Fir**

S11. C1. (1) 1917. Exposed to severe winds. Ground cover is mowed grass.

Status: (+ +) 20" DBH; 51' h. (1) 1975.

Suk. B20. (1) 1933. Suppressed by hardwoods. Underplanting.

Status: Re 1947.

S68. F3. (2) 1953, 30" h. B&B. (1) 1955, (1) Fp.

Froze after planting from late spring freeze.

Ground cover is mowed grass.

Status: (+) 4" DBH; 16' h. (1) 1975.

*Abies sachalinensis* (Schmidt) Mast.

**Sakhalin Fir**

S9. F9. (35) 1918.

Plantation Age	DBH	Height	No. of Trees	Year
8	1"	9'	33	1925
14	3"	17'	33	1931
18	4"	24'	32	1936
26	5"	33'	26	1944

Removed 3 trees in thinning 1938. Blowdown from severe winds 1948.

Status: Fw 1948.

S119. F3. (2) 1961, 3-6 planting stock. (2) 1970.

Severe competition from Poison Ivy vines.

Status: (—) 4', 7' h. (2) 1975.

S119. C1. (2) 1961, 3-6 planting stock. Replace (1) 1964. Site wet except during summer, exposed to wind, lawn area. Needles badly winter burned, had mowing damage 1974.

Status: (—) 4', 7' h. (2) 1975.

*Abies veitchii* Ldl.

**Veitch Fir**

S9. C1. (1) 1910, 2-2-2 planting stock. Site exposed to wind. Broken off during windstorm 1967.

Status: Fw 1967.

S50. F15. (13) 1925, 9-0 planting stock.

Plantation Age	DBH	Height	No. of Trees	Year
7	1"	7'	12	1931
12	3"	16'	12	1936
24			2	1949
45	6"	45'	2	1975

Blowdown from severe winds 1948. Thinning winter 1939-40.

Status: (—) largest tree is 8" DBH, 56' h. 1975.

S68. F3. (2) 1953, 3' B&B. Site wet except during dry summers. Ground cover is mowed grass.

Status: (+) 4", 7" DBH; 20', 32' h. (2) 1975.

**CEDRUS: CEDAR**

The specimen of Cedar of Lebanon growing in the Arboretum must be an especially hardy strain as it has survived temperatures to  $-20^{\circ}$  F. The climate around Wooster is usually too severe for true cedars.

*Cedrus atlantica* Manetti

**Atlas Cedar, Atlantic Cedar**

S99. H11. (10) 1930, 2-4 planting stock.

Status: Fc 1934.

S99. H12. (3) 1933, 2-2 planting stock. Partially destroyed by glaze storm 1938.

Status: Fc 1939.

S130. G3. (1) 1969, 18" h. (1) 1972, 3' h. Has survived  $-14^{\circ}$  F. Ground cover is mowed grass.

Status: (+) 4' h. 1975.

*Cedrus atlantica* 'Glauca'

**Blue Atlas Cedar**

S11. A29. (1) 1924.

Status: Fc 1925.

*Cedrus deodara* (Roxb.) Loud.

**Deodar Cedar, Himalayan Cedar**

S61. H12. (3) 1932.

Status: Fc 1935.

S119. E55. (3) 1957, 2-2 planting stock.

Status: Fc 1960.

*Cedrus libani* A. Rich.

**Cedar of Lebanon**

Suk. G30. (1) 1957. (1) 1972, 18' h. Foliage badly winter burned, severe winter 1958-59,  $-14^{\circ}$  F. Has survived  $-20^{\circ}$  F. in 1963. Ground cover is mowed grass.

Status: (+ +) 4" DBH; 21' h. (1) 1975.

## LARIX: LARCH

Larch has been planted in the Arboretum since 1903. Ten different species or types have been tried, mostly as forest plantations. Some forest plantations were pruned and some left unpruned and separate growth records were kept until 1943 when it was no longer possible to separate plots adjacent to each other. There are currently seven different types of larch remaining in the Arboretum. Severe winds in 1963 caused considerable windthrow of various larch, especially European Larch. Many remaining European Larch have made good growth and are in good condition, especially when they have sufficient growing space.

### *Larix decidua* Mill.

#### European Larch

S53. A6. 1903, 2-3 planting stock. Moist but well drained site. 1975 understory of Mock Orange, Tatarian Honeysuckle, Mulberry and Black Walnut to 8' h. Large larch are 15' to 25' apart. Small larch are spaced 6'-10' apart.



European Larch 70 years old and Northern Red Oak. Larch is 95 feet tall.

Plantation Age	DBH	Height	No. of Trees	Year
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73	14"	79'	12	1975
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Status: (+) 9"-22" DBH; 75'-95' h. (12) 1975.  
S53. A27. (152) 1903, 2-3 planting stock. (2) 1910. (2) 1958. Now growing in mixture of Black Walnut and Norway Spruce. Smaller tree underneath spread of Tulippoplar, top is gone.

Status: (+) 16", 21" DBH; 57', 80' h. (2) 1975.  
S53. O. (1) 1903, 2-3 planting stock. Lawn planting. 1975 crown spread is 51', growing in open with no competition.

Status: (+ +) 24" DBH; 57' h. (1) 1975.

S53. O. (2) 1909, 2-3 planting stock. Lawn planting in grove. One is tipped over from winds.

Status: (+) 19" DBH; 43', 46' h. (2) 1975.

S53. O. (3) 1909, 2-3 planting stock.

Status: (+) 12"-16" DBH; 49'-61' h. (3) 1975.

S53. C14. (6) 1909, 2-3 planting stock. Planted in row at side of road. Overtopped by adjacent plot of Red Maple.

Status: (+) 7"-11" DBH; 36'-46' h. (6) 1975.

### *Larix decidua*—*Picea abies*

#### European Larch—Norway Spruce

S53. D1. (272) 1909, set 6' x 6'; 140 larch 2-3 planting stock, 132 spruce 2-4 planting stock. 1975 dense undergrowth includes Sycamore Maple, Sugar Maple, Devils-Walkingstick, White Ash, and Blackberries to 6' h. Periodically mowed. Woodpecker holes in largest spruce. Two spruce dead from lightning. One larch with decayed base.

Plantation Age	DBH		Height		No. of Trees		Year
	EL	NS	EL	NS	EL	NS	
17	4"	3"	27'	23'	119	108	1925
24	5"	4"	38'	30'	114	85	1932
27					102	65	1935
28	6"	5"	43'	35'	102	63	1936
34	6"	6"	46'	40'	101	63	1943
45	8"	8"	56'	55'			1954
48	10"	9"	67'	64'			1957
66	11"	11"	79'	79'	41	22	1975

Thinning in 1935. Lightning destroyed 3 larch 1970, including largest larch in plot. Thinned between 1954-1957.

Status: Larch: (+) 7"-17" DBH; 75'-81' h. (41) 1975.

Status: Spruce: (+) 16"-18" DBH; 72'-81' h. (22) 1975.

### *Larix decidua*

#### European Larch

S53. D14. (288) 1909, 2-1 planting stock set 6' x 6'. Site dry in summer. 1975 heavy undergrowth Blackberry and Multiflora Rose.



Plantation Age	DBH	Height	No. of Trees	Year
17	5"	27'	233	1925
21			160	1929
24	6"	36'	153	1932
29	6"	38'	137	1938
29			127	1938
35	7"	45'	123	1944
44	8"	52'		1953
48	10"	55'		1957
66	12"	60'	33	1975

Thinning in 1938. Lost 10 to storm breakage 1938.

Status: (+) 9"-16" DBH; 51'-64' h. (33) 1975.

### *Larix decidua* and *Pinus strobus*

#### European Larch and White Pine

S92. E11. (256) 1912, set 6' x 6', 128 larch 2-2 planting stock, 128 pine 2-3 planting stock. On North slope. Heavy understory (1975) Blackberries, Red Oak, Mulberry, and Sugar Maple to 6' high.

Plantation Age	DBH		Height		No. of Trees		Year
	EL	WP	EL	WP	EL	WP	
14	5"	3"	28'	17'	124	63	1925
16	5"	4"	31'	23'	124	52	1927
21	6"	5"	37'	32'	118	37	1932
25	6"	5"	41'	34'	118	30	1936
41	6"	7"	44'	42'	110	22	1943
63	11"	13"	81'	80'	52	11	1975

Status: Larch: (—) 8"-16" DBH; 75'-86' h. (52) 1975. 20% average h. in living crown.

White Pine: (—) 10"-15" DBH; 60'-87' h. (11) 1975. 35% average h. in living crown.

### *Larix decidua*

#### European Larch

S74. J36. (256) 1913, 2-2 planting stock, set 6' x 6', 3'-4' h. Site flat alongside creek. 1975 undergrowth consists of Honeysuckle, Privet. Ground cover of Baltic Ivy. A few tops had been broken out by snows.

Plantation Age	DBH	Height	No. of Trees	Year
15			96	1928
17			94	1930
25	5"	42'	76	1938
62	10"	84'	23	1975

Twenty-seven removed in 1938 from snow damage.

Status: (+) 5"-18" DBH; 81'-87' h. (23) 1975.

S74. A12. (50) 1914, 2-4 planting stock 2'-4' h. Site a drained knoll in a wet area. 1975 dense undergrowth of Blackberries and Mulberry to 6' h. Area periodically mowed.

Plantation Age	DBH	Height	No. of Trees	Year
15			46	1929
62	11"	72'	11	1975

Status: (+) 5"-15" DBH; 48'-90' h. (11) 1975.

S74. B22. (157) 1914, 2-4 planting stock 2'-4' h. Underplanted in hardwood stand. (82) 1929.

Status: Fs 1959.

S74. E32. (49) 1916, 2-0 planting stock, 1' h. Undergrowth of Tatarian Honeysuckle, Black Cherry, Black Locust, and Mulberry to 5' h. (1975). Site dry in summer.

Plantation Age	DBH	Height	No. of Trees	Year
10	3"	18'	49	1925
14			48	1929
16	5"	30'	39	1931
22	6"	37'	37	1938
27	6"	41'	37	1943
41	8"	54'		1957
61	11"	75'	17	1975

Removed 2 trees in thinning 1938, damage by snow.

Status: (+ +) 8"-15" DBH; 70'-80' h. (17) 1975.

### *Larix x eurolepis* Henry

#### Dunkeld Larch, Dunkfeld Larch

S7. A20 (165) 1934, 2-1 planting stock, set 6' x 6'. 1975 undergrowth Blackberry, Tatarian Honeysuckle, Elder to 6' h.

Plantation Age	DBH	Height	No. of Trees	Year
3		6'	115	1936
4	1"	10'	114	1938
9	3"	22'	100	1943
25	4"	34'		1959
41	10"	75'	43	1975

Status: (+ +) 4"-14" DBH; 70'-84' h. (43) 1975.

### *Larix gmelinii* (Loud.) Turcz. ex Trautv.

#### Dahurian Larch

Suk. E34. (2) 1933. (1) 1939.

Status: NP 1968.

### *Larix gmelinii* 'Japonica' (Maxim. ex Regel) Pilg.

#### Kurile Dahurian Larch

Suk. B. 1933.

Status: Fs 1934.

### *Larix gmelinii* var. *olgensis*

(Henry) Ostenf. & Syrach-Larsen

S131. J9. (1) 1972, 3-yr. container grown, 38" h.

Damaged by woodchuck 1972.

Status: (+) 4' h. (1) 1975.

*Larix gmelinii* var. *principis-rupprechtii*

(Mayr.) Pilg.

**Prince Rupprecht Dahurian Larch**

Suk. G2. (140) 1929, 1-2 planting stock set 10' x 14'.

Plantation Age	DBH	Height	No. of Trees	Year
7	1"	8'	94	1936
28	6"	43'		1957
47	7"	60'	36	1975

Largest tree is 11" DBH, 63' h.

Status: (+) 1975.

Suk. H11. (5) 1930, 1-3 planting stock.

Status: Re 1962.

*Larix laricina* (Duroi) K. Koch

**Tamarack, Eastern Larch**

S99. O. (2) 1949. Planted too late in season.

Status: Fp 1949.

S103. E16. (170) 1954, 2-0 planting stock set 6' x 7'.

Ground cover is mowed grass. Wet, poorly drained depression. Trees on elevated perimeter growing better. (4) bent, snow 1974. South end of plot under branch spread of oaks from adjacent plot.

Plantation Age	DBH	Height	No. of Trees	Year
22	4"	36'	45	1975

Status: (+) 3"-6" DBH; 28'-43' h. (45) 1975.

*Larix leptolepis* (S. & Z.) Gord.

**Japanese Larch**

S9. J7. (5) 1909. Wet site. (4) 1968. (1) Fw 1970, windthrown. (1) Fw 1974, snow breakage, one remaining had top broken out.

Status: (+) 11", 16" DBH; 48', 68' h. (2) 1975.

S94. B24. (31) 1911. Wet, poorly drained site. Too much hardwood competition.

Status: Fs 1962.

S73. J43. (269) 1912, 2-2 planting stock set 6' x 6', 18" h. (125) 1930. 1968 underplanted with rhododendrons.

Plantation Age	DBH	Height	No. of Trees	Year
63	11"	78'	11	1975

Status: (+) 8"-14" DBH; 75'-82' h. (11) 1975.

S94. E33. (56) 1916, 1-1 planting stock set 6' x 6', 12"-15" h. Site dry in summer. Undergrowth (1975) of Tatarian Honeysuckle, Sassafras, Black Cherry, and Blackberry to 5' h.

Plantation Age	DBH	Height	No. of Trees	Year
10	3"	20'	55	1925
15			52	1930
16	4"	28'	52	1931
22	4"	33'	48	1938
27	4"	35'	43	1943
41	7"	42'		1957
59	9"	68'	12	1975

Status: (+) 6"-13" DBH; 62'-74' h. (12) 1975.

S134. J43. (16) 1967, container grown 2'-4' h. (5)

Re 1974, one with bleeding stem canker. Under-planting.

Plantation Age	DBH	Height	No. of Trees	Year
9	3"	16'	11	1975

Status: (+ +) 2"-4" DBH; 12'-20' h. (11) 1975.

*Larix occidentalis* Nutt.—*Larix laricina*

**Western Larch—Tamarack**

S99. E34. (60) 1918, 2-0 planting stock set 6' x 6'.

Planted as *Larix laricina* but all remaining trees in 1968 are *occidentalis*. *Larix occidentalis* 2-2 stock underplanted 1930.

Plantation Age		DBH	Height	No. of Trees	Year
T	WL				
14	1	1"	8'	20	1931
18	6	2"	12'	19	1936
25	13	3"	18'	15	1943
	38			8	1968
	40			5	1970
	45	9"	51'	5	1975

1970 (3) Re thinning, suppressed trees cut.

Status: (+ +) 7"-12" DBH; 48'-57' h. (5) 1975.

*Larix sibirica* (Munchh.) Ledeb.

**Siberian Larch**

S2. C1. (7) 1909. (6) 1933.

Status: Re 1956.

S2. E35. (54) 1916, 2-0 planting stock set 6' x 6', 8" h. Site dry in summer. Mowed grass underneath trees.

Plantation Age	DBH	Height	No. of Trees	Year
10	1"	9'	49	1925
16	2"	13'	49	1931
20	2"	16'	48	1936
27	3"	22'	44	1943
41	5"	25'		1957
54			14	1970
59	7"	37'	14	1975

1970 (6) Re low thinning. Trees at north end of plot underneath crown spread of adjacent Red Pine.

Status: (+) 5"-10" DBH; 33'-48' h. (14) 1975.

## PICEA: SPRUCE

The first plantings of spruce were made in the Arboretum in 1909. Since the initial planting, 41 different species, cultivars, or varieties of spruce have been outplanted in forest plantations, as ornamentals, and in Christmas tree plantings. There have been 42 different plantings of Norway Spruce. Norway Spruce has been planted alone and in mixture with European Larch, Scots Pine, Red Pine, White Pine, Ponderosa Pine, Yellowpoplar, and Douglasfir. There has been some windthrow of spruce during periods of especially high winds, especially in the Spring when the ground has been saturated with water. Many spruce plantations were suppressed by hardwood invasion.

### *Picea abies* (L.) Karst.—*Larix decidua*

#### Norway Spruce—European Larch

S53. D1. (132) 1909. See *Larix decidua-Picea abies* plot D1 for records.

### *Picea abies*

#### Norway Spruce

S53. O. (1) 1909, 2-3 planting stock. 16" DBH 1972.

Status: Fw 1972. Tornado.

S53. O. (1) 1909, 2-3 planting stock. Change in landscaping 1963.

Status: Re 1963.

S53. A27a. (152) 1910, 2-2 planting stock set 8' x 8'.

Plantation Age	DBH	Height	No. of Trees	Year
18	2"	16'	139	1927
23	4"	30'	45	1932
30	5"	35'	35	1939

Status: Fs 1950. Competition from planted hardwoods.

S53. A27b. (152) 1910, 2-2 planting stock set 8' x 8'. Also planted in plot are European Larch, Yellowpoplar, Russian Mulberry, and Black Locust. Trees naturally seeded into plot include Catalpa, White Ash, and Black Walnut. All in competition with Norway Spruce. 1975 dense undergrowth of Blackberry, Poison Ivy, Elderberry, Chokecherry, and White Ash.

Plantation Age	DBH	Height	No. of Trees	Year
18	4"	24'	151	1927
23	5"	33'	126	1932
30	6"	39'	124	1939
40	7"	49'		1950
65	9"	64'	72	1975

(1) Re 1972 due to road building. (1) Fw 1974, struck by lightning, was 15" DBH, 82' tall, trunk

was hollow for 10' from base. Many spruce have decay in butts.

Status: Spruce: (—) 4"-17" DBH; 25'-80' h. (72) 1975.

Black Walnut: (+) 9", 20" DBH; 70', 80' h. (2) 1975.

S53. O. (3) 1910, 2-2 planting stock. (2) 1970.

Status: (+) 21", 23" DBH; 76' h. (2) 1975.

S53. O. (1) 1910, 2-2 planting stock. Understory tree.

Status: (—) 9" DBH; 47' h. (1) 1975.

S53. O. (13) 1910, 2-2 planting stock. Windbreak planting mixed with *Pinus nigra*. Spruce outgrew pines.

Status: (+) 8"-20" DBH; 39'-67' h. (13) 1975.

S53. O. 1910, 2-2 planting stock. Lawn planting.

Tops have been broken out of all except one tree. 1975 13" av. DBH; 58' av. h.

Status: (—) 10"-17" DBH; 55'-62' h. (6) 1975.

### *Picea abies-Pinus resinosa*

#### Norway Spruce—Red Pine

S49. E-4. (153) 1912 (68 spruce, 85 pine), 2-6 planting stock set 6' x 6', 2' h. Four *Paulownia tomentosa* self seeded 1952. Top died —20° F. 1963; resprouted. 4"-6" DBH 1975.

Plantation Age	DBH		Height		No. of Trees		Year
	NS	RP	NS	RP	NS	RP	
9	2"	3"	16'	15'	65	85	1922
15	4"	5"	30'	26'	59	84	1927
19	4"	5"	33'	30'	59	84	1931
24	5"	6"	36'	36'	59	82	1936
26					45	67	1938
32	7"	8"	53'	56'	40	64	1944
44	8"	9"	57'	58'			1957
63	9"	10"	70'	72'	12	20	1975

(1) Fw 1974, spruce blowdown. Heavy 22" snowfall Dec. 1974 broke crowns out of 1 spruce 12" DBH and 1 pine 12" DBH. Colony of woodchucks in center of plot with dry summer 1975 weakened trees so Ips Engraver Beetles attacked, all trees in center of plot lost. Heavy undergrowth of Tatarian Honeysuckle, Alanthus, Staghorn Sumac, Blackberries, and Sassafras.

Status: Red Pine: (—) 5"-15" DBH; 66'-82' h. (20) 1975.

Norway Spruce: (—) 6"-17" DBH; 65'-77' h. (12) 1975.

### *Picea abies*

#### Norway Spruce

S49. O. (20) 1912. Re prior 1968 due to construction.

Status: NP 1968.

*Picea abies*—*Pinus strobus*

Norway Spruce—White Pine

S81. J2. (589) 1912. See *Pinus strobus*—*Picea abies* for data.

*Picea abies*—*Pinus sylvestris*

Norway Spruce—Scotch Pine

S74. J10. (262) 1912; 132 spruce 2-5 planting stock, 130 pine 2-2 planting stock; all set 4' x 4'. Site dry. Grass and azalea beds established 1970.

Plantation Age	DBH		Height		No. of Trees		Year
	NS	SP	NS	SP	NS	SP	
13	2"	4"	19'	24'	95	93	1926
20	3"	6"	22'	36'	40	76	1933
24	3"	7"	23'	40'	35	74	1936
56					72		1968
					48		1968
63	14"		72'		33		1975

1952 all spruce have failed. 1968 low thinning and underplant azaleas. Two or three trees have died each year since 1968 due in large measure to excessive public use. December 1974 five trees broken off by 22" snowfall.

Status: Scotch Pine: (+) 9"-21" DBH; 65'-75' h. (33) 1975.

White Pine: (+ +) 19" DBH; 66' h. (1) 1975.

Spruce: Fs 1952.

*Picea abies*—*Pinus strobus*

Norway Spruce—White Pine

S74. J4a. (50) 1912, 25 spruce, 25 pine, 2-5 planting stock set 4' x 4'.

Plantation Age	DBH		Height		No. of Trees		Year
	NS	WP	NS	WP	NS	WP	
13	2"	3"	18'	22'	23	17	1925
19	3"	5"	25'	33'	14	11	1932
24	4"	6"	30'	41'	7	11	1936

Clearcut 1956 as planted conifers were overtopped by hardwoods, also damaged by drought.

Status: Fs 1956.

S74. J4b. (50) 1912, 25 spruce, 25 pine, 2-5 planting stock set 4' x 8'.

Plantation Age	DBH		Height		No. of Trees		Year
	NS	WP	NS	WP	NS	WP	
13	3"	4"	19'	21'	24	19	1925
19	3"	5"	25'	33'	20	12	1932
24	4"	7"	31'	43'	13	11	1936

Clearcut 1956 as planted conifers were overtopped by hardwoods, also damaged by drought.

Status: Fs 1956.

*Picea abies*—*Liriodendron tulipifera* L.—

*Fraxinus pennsylvanica* Marsh.

Norway Spruce—Yellowpoplar—Green Ash

S74. E12. (105) 1913, Spruce, 2-5 planting stock, underplanted. (64) 1909, Yellowpoplar, 2-1 planting stock. (64) Ash, 2-1 planting stock. Yellowpoplar and Ash set in alternating rows 6' x 12'. 1975 very little undergrowth, scattered Japanese Honeysuckle, Black Cherry, and Tatarian Honeysuckle.

Plantation Age	DBH		Height		No. of Trees		Year
	NS	NS	NS	NS	NS	NS	
15	2"		15'		97		1927
20	3"		19'		96		1932
26	3"		21'		92		1938
32	3"		22'		78		1944
63	5"		40'		10		1975

Spruce badly suppressed and removed 1949. Ash died out by 1932. Tulippoplar 2 to 3 log trees with multiple tops above this.

Status: Spruce: (—) 3"-7" DBH; 15'-45' h. (10) 1975.

Plantation Age	DBH		Height		No. of Trees		Year
	YP	A	YP	A	YP	A	
19	3"	2"	26'	18'	58	54	1927
24	4"		34'		52	0	1932
30	6"		42'		48		1938
36	7"		54'		45		1944
67	14"		87'		45		1975

Status: Yellowpoplar: (+) 8"-22" DBH; 50'-91' h. (45) 1975.

Ash: Fs 1932.

*Picea abies*

Norway Spruce

S74. O. (1) 1913, 2-6 planting stock. Lawn planting.

Status: (+) 14" DBH; 65' h. (1) 1976.

S74. E10a. (450) 1913, 2-5 planting stock set 2' x 2'.

Plantation Age	DBH		Height		No. of Trees		Year
9					96		1922
13	2"		18'		96		1925
19	3"		27'		96		1931
19					68		1931
23	4"		28'		68		1935
23					51		1935
29					44		1941
31	5"		40'		38		1944

Thinned in 1922 to 6' x 6' spacing. Thinned 1931, 1935, and 1941. In 1954 plots E10a, E10b, and E10c were combined into one plot E10.

S74. E10b. (125) 1913, 2-5 planting stock set 4' x 4'.



Plantation Age	DBH	Height	No. of Trees	Year
19	4"	29'	89	1931
19			64	1931
23	5"	33'	64	1935
23			49	1935
29			44	1941
31	6"	47'	42	1944

Thinned 1931, 1935, and 1941. In 1954 plots E10a, E10b, and E-10c were combined into one plot E10.

S49. E10c. (416) 1913, 2-2 planting stock set 4' x 4'.

Plantation Age	DBH	Height	No. of Trees	Year
13	2"	16'	400	1925
19	3"	25'	340	1931
19			250	1931
23	4"	30'	240	1935
23			175	1935
29			158	1941
31	5"	47'	127	1944

Thinned 1931, 1935, and 1941. In 1954 plots E10a, E10b, and E10c were combined into one plot E10.

E10. See E10a, E10b, E10c. 1975, heavy underbrush of Blackberry, Devils-Walkingstick, Elderberry, and Multiflora Rose.

Plantation Age	DBH	Height	No. of Trees	Year
41	7"	54'		1954
44	8"	61'		1957
63	9"	85'	75	1975

Largest tree is 16" DBH, 87' h.

Status: (—) 5"-16" DBH; 75'-87' h. (75) 1975.

S74. J1. (199) 1914, 2-3 planting stock, 18" h.

Plantation Age	DBH	Height	No. of Trees	Year
17			195	1930
25	3"	22'	96	1939

Removed in 1956 due to suppression and drought of 1954-56.

Status: Fs 1956.

S74. J13. (63) 1915, 2-3 planting stock set 4' x 4'.

Plantation Age	DBH	Height	No. of Trees	Year
12	3"	21'	42	1927
21	4"	30'	28	1936
24			18	1939

Suppressed from plantings in adjacent plots 1951. Status: Fs 1951.

S99. J28. (63) 1915, 2-3 planting stock. (50) 1930. Status: Re 1949.

S74. K24. (144) 1916, 2-3 planting stock set 4' x 4', 72 8" plants and 72 18" plants, set in alternate

rows. After 16 years there was no significant difference in size of plants. Eight-inch transplants had 77% survival; 18" transplants had 93% survival. 1975 cull Scarlet Oak (*Quercus coccinea*) 19" DBH, 63' h. in center of plot. Site is well-drained, gentle slope.

Plantation Age	DBH	Height	No. of Trees	Year
17	2"	18'	123	1932
21	2"	19'	106	1936
60	8"	60'	24	1975

Status: (+) 5"-13" DBH; 50'-63' h. (24) 1975.

### *Picea abies*—*Pinus ponderosa*

#### Norway Spruce—Ponderosa Pine

S53. E6. (25) 1916. See *Pinus ponderosa*-*Picea abies* for data.

### *Picea abies*

#### Norway Spruce

S9. O. (83) 1917. See *Pinus nigra*-*Picea abies*-*Pinus sylvestris* for data.

S99. J16. (49) 1917, 2-4 planting stock set 6' x 6'.

Plantation Age	DBH	Height	No. of Trees	Year
9	3"	16'	49	1926
15	5"	28'	49	1931
19	5"	33'	48	1936
21			37	1938
38			16	1955
39			5	1956

1938 Re (11) thinning. 1955 (21) Fw wind damage. 1956 (11) Fw wind damage.

Status: Fw 1956.

### *Picea abies*—*Pseudotsuga menziesii*

#### Norway Spruce—Douglasfir

S99. E54. (70) 1919, 2-2 planting stock set 6' x 6'; 35 Spruce, 35 Douglasfir set in alternate rows. Ground cover is duff from fallen needles.

Plantation Age	DBH		Height		No. of Trees		Year
	NS	DF	NS	DF	NS	DF	
9	2"	1"	10'	7'	35	35	1927
13	3"	2"	18'	13'	35	34	1931
18	4"	3"	26'	21'	35	32	1936
23					35	28	1941
25	6"	4"	37'	31'	34	19	1944
56	11"	3"	81'	22'	16	1	1975

Many Douglasfir had been suppressed by Spruce. Many trees have been destroyed by snow. Four Douglasfir 9" DBH were destroyed by 22" snow-fall Dec. 1974.

Status: Norway Spruce: (+) 7"-17" DBH; 75'-85' h. (16) 1975.

Douglasfir: (—) 3" DBH; 22' h. suppressed tree. (1) 1975.

## Norway Spruce

### *Picea abies*

S36. O. 1930 (2). Lightning scar on tallest tree 1974.

Status: (+) 25", 28" DBH; 70', 76' h. (2) 1975.

S36. B1. 1931.

Status: NP 1959.

S36. O. (5) 1931. Windbreak. Tops of two trees gone. One tree struck by lightning. Lawn planting.

Status: (—) 14"-18" DBH; 54'-69' h. (4) 1975.

S97. O. (1) 1931. Very exposed windy site. Top of tree dead.

Status: (—) 13" DBH; 46' h. (1) 1975.

S36. O. (2) 1932.

Status: (+) 21", 24" DBH; 70', 82' h. (2) 1975.

S36. O. (1) 1932.

Status: (+) 15" DBH; 43' h. (1) 1975.

S36. O. (2) 1932.

Status: (+) 18" DBH; 60' h. (2) 1975.

S36. O. (1) 1932. Exposed windy site.

Status: (+) 15" DBH; 43' h. (1) 1975.

Suk. O. (2) 1932. Set close to house.

Status: (+) 13", 15" DBH; 45' h. (2) 1975.

S36. O. (24) 1932. Windbreak planting. 1975 all in poor condition due to site changes, removal of lower branches up to 10 feet, excessive use of herbicides, dry weather, and red spider mites. Effectiveness as a windbreak has been partially destroyed by removal of lower branches.

Status: (—) 5"-18" DBH; 23'-48' h. (24) 1975.

S36. O. (1) 1932. Lawn planting. 1975 excessive use of herbicides and dry weather have caused deterioration.

Status: (—) 18" DBH; 55' h. (1) 1975.

S36. O. (4) 1934.

Status: (—) 12" DBH; 52' h. (1) 1975.

S85. B4. (80) 1956. (80) Ts 1958 to Southeastern Test Farm.

Status: Re 1958.

S88. J15. (16) 1957, set 10' x 10'. 1975 closed stand. Ground cover essentially duff from fallen needles.

Plantation Age	DBH	Height	No. of Trees	Year
19	8"	32'	16	1975

Status: (+ +) 4"-10" DBH; 27'-34' h. (16) 1975.

S100. O. (1) 1960. Construction changes.

Status: NP 1968.

S99. B1. (2) 1963. (1) 1964, (1) Fp.

Status: NP 1968.

S124. O. (3) 1967.

Status: (+) 1"-3" DBH; 9'-16' h. (3) 1975.

S99. D6. (6) 1970, 5' h. Ts from nursery with tree spade. Windbreak planting. (6) Ts 1974 with tree spade to campus O, (+ +) 10' h.

Status: (+ +) 11' h. (6) 1975.

S99. J40. (2) 1970, 6' to 10' h. Ts from nursery with tree spade. Fill gaps in established windbreak planting.

Status: (+) 3" DBH; 14', 16' h. (2) 1975.

### *Picea abies* 'Aurea'

#### Golden Norway Spruce

Suk. B. 1932. Exposed site.

Status: Fs 1933.

### *Picea abies* 'Clanbrassiliana'

S78. B5. (2) 1969, 6" h. (2) Ts, B4, 1974.

Status: (+) 9" h. (2) 1975.

### *Picea abies* 'Inversa'

#### Drooping Norway Spruce

S9. C1. (1) 1916, graft 10" h.

Status: (+ +) 14' spread, 9' h. (1) 1975.

S57. B1. (1) 1931, graft.

Status: (+ +) 11' spread, 56" h. (1) 1975.

### *Picea abies* 'Iowa'

#### Iowa Norway Spruce

Suk. D16. (72) 1960, set 10' x 10'. 1975 closed stand. Sheet erosion from water off road has many roots exposed. Ground cover is duff from fallen needles.

Plantation Age	DBH	Height	No. of Trees	Year
16	6"	35'	71	1975

Status: (+ +) 4"-7" DBH; 32'-37' h. (71) 1975.

### *Picea abies* 'Maxwellii'

#### Maxwell Norway Spruce

S133. B4. (3) 1974, 10-year grafts. Ts from Arboretum nursery where they had been growing since 1966.

Status: (+ +) 2' h. (3) 1975.

### *Picea abies* 'Nidiformis'

#### Nest Norway Spruce

S53. B1. (1) 1931.

Status: (+ +) 9' spread, 63" h. (1) 1975.

S102. O. (1) 1939. Graft. Badly crowded on all sides. The only way it could grow was up.

Status: (+ +) 13' h. (1) 1974. Broke down by 22" snow Dec. 1974; now (+) 5' h. (1) 1975.

S78. B5. (1) 1969, 6" h. (1) Ts, 1974, B4.

Status: (+) 8" h. (1) 1975.

***Picea abies* 'Otranudakus'**

S58. B1. (1) 1936, 6-yr. graft.

Status: Re 1947.

***Picea abies* 'Pyramidata'**

**Pyramidal Norway Spruce**

S9. C1. (5) 1910, 12" h. (2) 1956, (3) Re.

Status: Re 1960.

S102. B1. (16) 1932, grafts. (1) 1959.

Status: (+) 9" DBH; 33' h. (1) 1975.

S102. O. (1) 1932 graft.

Status: Re 1952.

S58. B1. (9) 1933. (1) 1942.

Status: (+) 14" DBH; 58' h. (1) 1975.

Suk. O. (1) 1939.

Status: (+ +) 13' h. (1) 1975.

***Picea abies* 'Remontii'**

**Remont Norway Spruce**

S9. O. (2) 1917. (2) 1930. Removed change in landscaping.

Status: NP 1968.

S97. B1. (1) 1939, 9-yr. graft.

Status: (+) 6" DBH; 23' h. (1) 1975.

***Picea asperata* Mast.**

**Dragon Spruce**

S6. B1. (4) 1931. (2) 1960. 1975 overtopped by adjacent trees.

Status: (+) 8" DBH; 28' h. (2) 1975.

***Picea asperata* var. *ponderosa* Rehd. & Wils.**

**Bigcone Dragon Spruce**

S6. B1. (1) 1933. Overtopped by adjacent trees. (—) 6" DBH; 27' h. (1) 1974.

Status: Fw 1974. Broken off by 22" snowfall Dec. 1974.

***Picea bicolor* (Maxim.) Mayer.**

**Alcock Spruce**

S9. C3. (11) 1909. (7) 1933.

Status: Re 1947.

S99. J32. (30) 1927, 2-9 planting stock. (25) 1933. (21) 1939. (4) 1968. Ground cover is mowed grass. 1975. Av. DBH 14"; h. 70'. Two trees under spread of adjacent White Oak.

Status: (+ +) 9"-17" DBH; 59'-79' h. (4) 1975.

***Picea engelmannii* Parry**

**Engelmann Spruce**

S9. C1. (2) 1909, 18" h. (1) 1954.

Status: Re 1958.

S2. B1. (3) 1915, 2-2 planting stock, 10" h. (1) 1953, (2) Fw snow damage.

Status: (+ +) 12" DBH; 40' h. (1) 1975.

S2. J15. (49) 1915, 2-2 planting stock, 10" h.

Plantation Age	DBH	Height	No. of Trees	Year
13		7'	45	1927
17	2"	10'	44	1931
21	3"	12'	43	1936
25			42	1939
41			3	1956

1939 thinning removed one tree. 1956 (39) Fw wind damage.

Status: Fw 1956.

S128. O. 1934. (1) 1964.

Status: NP 1968.

S128. H. (2) 1934.

Status: Re 1950.

S85. B1. (2) 1957. (1) 1959.

Status: (+ +) 3" DBH; 14' h. (1) 1975.

S85. F7. (16) 1957. Set 10' x 10' (11) 1968.

(5) Fm prior to 1968. Stand not closed due to missing plants, ground cover is grass and blackberries.

Plantation Age	DBH	Height	No. of Trees	Year
19	4"	12'	11	1975



**Alcock Spruce planted in 1927. Largest spruce is now 17 inches in diameter and 79 feet tall. This spruce from Japan is seldom grown in U. S.**

Status: (+ +) 2"-5" DBH; 8'-15' h. (11) 1975.

***Picea glauca* (Moench) Voss**

**White Spruce**

S2. C1. (20) 1915, 2-2 planting stock.

Status: Fw 1962.

S2. C3. 1915, 2-2 planting stock. (14) 1933.

Status: Fw 1958.

S2. C3. (12) 1915, 2-2 planting stock. (1) 1955.

Status: Fw 1960.

S2. J14. (49) 1915, 2-2 planting stock set 6' x 6'.

Plantation Age	DBH	Height	No. of Trees	Year
11	3"	13'	49	1926
17	4"	23'	48	1931
21	4"	26'	47	1936
41			4	1956

1956 (43) Fw wind damage.

Status: Fw 1956.

S53. J31. 1928.

Status: NP 1960.

S53. J28. (9) 1931, 2-6 planting stock. Wind damage 1956.

Status: Fw 1956.

S13. B1. (1) 1931.

Status: Re 1954.

S36. B1. (25) 1933. Re (4) 1937, Ts (21). (2) 1939. (1) 1954.

Status: (+ +) 11" DBH; 41' h. (1) 1975.

S36. H. (8) 1933. (5) 1941, Ts (3).

Status: Re 1954.

S99. H. 1940.

Status: Re 1954.

S88. O. 1945. Change in landscaping.

Status: Re 1954.

S88. O. (2) 1955. Change in landscaping.

Status: NP 1968.

S88. O. (2) 1956.

Status: (+) 10" DBH; 40' h. (2) 1975.

S88. B4. (80) 1956. Ts 1958 Southeastern Test Farm.

Status: Re 1958.

S85. F5. (16) 1957, set 10' x 10'. (15) 1968, (1) Fm prior to 1968. 1975, stand closed; ground cover duff from fallen needles.

Plantation Age	DBH	Height	No. of Trees	Year
19	5"	27	15	1975

Status: (+ +) 3"-6" DBH; 24'-28' h. (15) 1975.

S85. B1. (2) 1957.

Status: 8', 13' h. (2) 1975.

S99. D6. (15) 1970, 5' h. Ts from Arboretum nurs-

ery with tree spade. (12) 1972, (3) Fw, Fs, dry weather and underneath mature *Pseudotsuga*.

(12) Ts 1975 with tree spade to campus.

Status: (+ +) 8'-10' h. (12) 1975.

S99. J40. (3) 1970, 5'-6' h. Ts from Arboretum nursery with tree spade. Set in gaps in windbreak.

Status: (+) 2" DBH; 12' h. (3) 1975.

S99. A47. (22) 1971, 4'-5' h. Ts from Arboretum nursery; half B&B, half moved with tree spade. Windbreak planting.

Status: (+ +) 6'-12' h. (22) 1975.

S99. T. (16) 1971, 5' h. Ts from Arboretum nursery with tree spade. Windbreak planting.

Status: (+ +) 6'-12' h. (16) 1975.

***Picea glauca* var. *albertiana* (S. Brown) Sarg.**

**Alberta White Spruce, Western White Spruce**

S53. J23. (49) 1919, 2-4 planting stock set 6' x 6', 18" h.

Plantation Age	DBH	Height	No. of Trees	Year
9	2"	10'	49	1927
13	3"	16'	49	1931
17	4"	20'	49	1936
20			46	1939
37			2	1955
38			1	1956

1939 removed three in thinning. 1955 (44) Fw wind damage. 1956 (1) Fw wind damage.

Status: Fw 1956.

S72. B1. (16) 1930. (1) 1939, Ts (15).

Status: 9" DBH; 36' h. (1) 1975.

S72. B. 1930. Exposed site.

Status: Fs 1933.

S72. J32. (10) 1942, 17-yr plants. NP 1968.

Status: NP 1968.

***Picea glauca* (var. *albertiana*) 'Conica'**

**Dwarf Alberta White Spruce**

S56. B1. (2) 1968. (2) Ts 1974 with tree spade.

Status: (+ +) 29", 35" h. (2) 1975.

S78. B5. (1) 1969, 12" h.

Status: (+) 24" h. (1) 1974.

S56. B4. (2) 1974, 48", 65" h., 9-yr. grafts. Grew in Arboretum nursery 7 years. Ts with tree spade.

Status: (+) 50", 67" h. (2) 1975.

S56. B1. (2) 1974, 59", 77" h. Ts from Arboretum nursery where they had been growing since 1967.

Status: (+ +) 63", 80" h. (2) 1975.

***Picea glauca* 'Coerulea'**

**Blueleaf White Spruce**

S13. B1. (1) 1931.

Status: (+ +) 11" DBH; 41' h. (1) 1975.



***Picea glauca* 'Densata'**

**Black Hills White Spruce**

S88. B1. (2) 1957. Competition from adjacent trees on smaller spruce.

Status: (+ +) 2", 4" DBH; 11', 16' h. (2) 1975.

S88. F6. (16) 1957, set 10' x 10'. 1975 closed stand, ground cover duff from fallen needles, Velvet Moss, and a few blackberries being shaded out.

Plantation Age	DBH	Height	No. of Trees	Year
19	5"	23'	16	1975

Status: (+ +) 4"-6"; 17'-27' h. (16) 1975.

***Picea glehni* (Schmidt) Mast.**

**Sakhalin Spruce**

S131. G30. (1) 1938. (1) Ts 1942 H.

Status: Re 1950.

***Picea jezoensis* (S. & Z.) Carr.**

**Yeddo Spruce**

Suk. B. 1932. Too exposed a site.

Status: Fs 1933.

***Picea koyamai* Shiras**

**Koyamai Spruce**

S65. J24. (9) 1927, 2-3 planting stock, 1' h. (4) 1933.

Status: Fw 1948. Severe snow damage.

S65. J32. (9) 1927, 2-3 planting stock, 1' h. (8) 1968. 1975, 10" av. DBH; 46' av. h., 3 smaller trees with butt rot. Ground cover is mowed grass.

Status: (+) 7"-13" DBH; 40'-50' h. (8) 1975.

S70. B1. (19) 1930, 2-0 planting stock. (1) 1939, (18) Ts. Ground cover is mowed grass.

Status: (+ +) 9" DBH; 30' h. (1) 1975.

S70. J24. (31) 1931, 2-4 planting stock. (29) 1939. Status: Re 1950.

***Picea likiangensis* (Franch.) Pritz.**

**Likiang Spruce**

S131. H11. (5) 1930. (3) 1933.

Status: Fc 1936.

***Picea mariana* (Mill.) B.S.P.**

**Black Spruce**

S88. B1. (318) 1937, 2-0 planting stock.

Status: Fs 1954.

S93. A3. (120) 1939, 2-2 planting stock, 18". Cut for Christmas trees.

Status: Re 1948.

S93. O. 1939.

Status: Re 1952.

S93. H. (3) 1939.

Status: Re 1950.



**Koyamai Spruce, planted in 1927, is now 13 inches in diameter and 50 feet high. Fewer than 100 of these trees are reported to be growing wild.**

S93. B1. (2) 1957. (1) 1964, (1) F.

Status: (+) 19' h. (1) 1975.

S88. F9. (16) 1957, set 10' x 10'. (2) Re 1967. (7) 1968, (9) Fm prior to 1968. 1975 stand open from missing trees, ground cover is grass.

Plantation Age	DBH	Height	No. of Trees	Year
19	3"	19'	7	1975

Status: (+) 2"-5" DBH; 18'-20' h. (7) 1975.

***Picea montigena* Mast.**

**Candelabra Spruce**

S17. H. 1931.

Status: NP 1964.

S6. G30. (1) 1934. (1) Ts 1936.

Status: NP 1947.

S6. H. (5) 1934.

Status: Re 1950.

***Picea obovata* Ledeb.**

**Siberian Spruce**

S9. J18. (49) 1918, set 6' x 6', 8" h.



**Serbian Spruce**, a spruce which should be used more often for ornamental plantings.

Plantation Age	DBH	Height	No. of Trees	Year
10	2"	10'	49	1927
14	3"	16'	49	1931
18	4"	20'	49	1936
21			46	1939
38			6	1956

1939 (3) removed in thinning. 1956 (40) Fw wind damage.

Status: Fw 1956.

S10. B1. (2) 1918.

Status: (+) 8" DBH; 39' h. (2) 1975.

*Picea omorika* (Pancic) Bolle

**Serbian Spruce**

S11. C1. (1) 1917.

Status: Re 1958.

S9. J22. (27) 1918, 2-2 planting stock, set 6' x 6'.

Plantation Age	DBH	Height	No. of Trees	Year
10	2"	8'	23	1927
14	3"	19'	23	1931
18	4"	24'	23	1936
21			22	1939
38			1	1956

1931 (1) removed thinning. 1956 (21) Fw severe winds.

Status: Fw 1956.

S79. B1. (2) 1933, 7-yr. grafts.

Status: Re 1947.

S99. B1. (69) 1937, 2-4 planting stock.

Status: Re 1947.

S99. B1. (66) 1939, 2-6 planting stock.

Status: Re 1947.

S8. H. (1) 1939, 8-yr. grafts.

Status: Re 1950.

S63. H. (3) 1942, 2-12 planting stock.

Status: Re 1950.

Suk. O. (1) 1955. (1) 1964.

Status: NP 1968.

S132. B1. (3) 1957. (1) 1968, (2) NP.

Status: Fm 1971.

S132. H8. (50) 1957.

Status: Re 1961.

S99. J13. (20) 1958, set 10' x 10'. 1968 (19), (1) Fm prior to 1968. 1975, stand closed. Grass in ground cover being shaded out.

Plantation Age	DBH	Height	No. of Trees	Year
18	5"	20'	19	1975

Status: (+ +) 3"-7" DBH; 18'-25' h. (19) 1975.

S45. O. (2) 1960. (+ +) 18' h. (2) 1973. (+ +) 20' h. (2) 1974.

Status: (+ +) 5" DBH; 22' h. (2) 1975.

S85. O. (3) 1966. (+ +) 10' h. (3) 1970.

Status: (+ +) 3" DBH; 15' h. (3) 1975.

*Picea orientalis* (L.) Link

**Oriental Spruce**

S92. J20. (49) 1918, 2-2 planting stock set 6' x 6', 7" h. (17) 1968. 1975 ground cover is mowed grass.

Plantation Age	DBH	Height	No. of Trees	Year
10		6'	48	1927
14	2"	11'	48	1931
18	3"	17'	48	1936
19			45	1936
58	10"	55'	17	1975

1936 Re (3) thinning.

Status: (+) 8"-15" DBH; 49'-58' h. (17) 1975.

S9. O. (23) 1918. 1975 average DBH is 10".

Status: (+) 7"-13" DBH; 48'-58' h. (8) 1975.

S92. O. (2) 1918, 2-2 planting stock, 7" h.

Status: Re 1955.

S92. C1. (5) 1921, 2-5 planting stock.

Status: Re 1959.

- S92. B1. (2) 1921, 2-5 planting stock.  
Status: (+ +) 12", 14" DBH; 49' h. (2) 1975.
- S92. C4. (5) 1921, 2-5 planting stock.  
Status: Re 1959.
- S18. H. (4) 1933, 3-yr. grafts. (1) Ts 1941. (1) Ts 1942.  
Status: Re 1950.
- S18. H. (4) 1939, 9-yr. grafts.  
Status: Re 1950.
- S99. B1. (1) 1974, 5-yr. container-grown seedling, 18" h.  
Status: (+) 2' h. (1) 1975.

***Picea polita* (S. & Z.) Carr.**

**Tigertail Spruce**

- S9. J21. (26) 1918, 2-2 planting stock set 6' x 6', 10' h. 1975 ground cover is mowed grass.

Plantation Age	DBH	Height	No. of Trees	Year
10		5'	12	1927
14	1"	7'	11	1931
18	2"	10'	11	1936
58	5"	24'	3	1975

Status: (—) 4"-5" DBH; 24' h. (3) 1975.

- S102. C1. (1) 1921.

Status: Re 1947.

***Picea pungens* Engelm.**

**Colorado Spruce, Blue Spruce**

- S53. J42. (56) 1913, 20" h. (27) 1933.  
Status: Re 1966.
- S99. O. (1) 1916. (1) 1964.  
Status: NP 1968.
- S99. O. (3) 1916. (1) 1970, (2) Fw severe wind-storm.  
Status: (—) 9" DBH; 43' h. (1) 1975.
- S99. C1. (12) 1922. (2) 1950.  
Status: Re 1962.
- S99. J17. (49) 1922, 2-4 planting stock set 6' x 6', 15" h.; set 21 with green color and 28 with blue color.

Plantation Age	DBH		Height		No. of Trees		Year
	Gr	Bl	Gr	Bl	Gr	Bl	
10	2"	2"	9'	9'	21	28	1931
14	3"	3"	14'	14'	21	28	1936
33					5	7	1955
34					2	2	1956

1955 (37) Fw severe wind damage. 1956 (8) Fw severe wind damage.  
Status: Fw 1956.

- S99. O. 1922, 2-4 planting stock.  
Status: (+ +) 7"-13" DBH; 40'-59' h. (10) 1975.

- S99. C4. (4) 1922, 2-4 planting stock. (1) 1955.  
Status: Re 1960.

- S99. O. (1) 1922, 2-4 planting stock.  
Status: (+) 13" DBH; 41' h. (1) 1975.

- S16. B1. (1) 1933.  
Status: Fc 1936.

- S16. H. (300) 1934, 4-0 planting stock. (76) Ts 1939.

Status: Re 1939.

- S79. B1. (2) 1934, 3-yr. grafts.  
Status: Fw 1958, windthrown.

- S79. B1. (1) 1936, 3-yr. graft. (1) 1973) (glauca)  
Status: (+ +) 11" DBH; 33' h. (1) 1975.

- S5. H. (300) 1939, 2-8 planting stock. Christmas tree planting.  
Status: Re 1950.

- S58. H. (3) 1939, 7-yr. graft. (2) 1942, (1) F.  
Status: Re 1950.

- S5. B1. (2) 1939, 2-7 planting stock.  
Status: (+ +) 10", 11" DBH; 34' h. (2) 1975.

- Suk. O. 1942. Change in landscaping.  
Status: Re 1950.

- S85. O. (1) 1953. Foundation planting against house.  
Status: (—) 15" DBH; 35' h. (1) 1975.

- S85. O. (1) 1956. On lawn fertilized frequently.  
Status: (+ +) 14" DBH; 43' h. (1) 1975.

- S85. B1. (1) 1957. Green. Overtopped by adjacent trees.  
Status: (+) 3" DBH; 15' h. (1) 1975.

- S85. F8. (16) 1957, set 10' x 10'. (15) 1968, (1) Fm prior 1968. 1975 stand closed, ground cover mostly duff from fallen needles, scattered Cap Moss (*Polytrichum* sp.), some erosion in plot from road water.

Plantation Age	DBH	Height	No. of Trees	Year
19	7"	25'	15	1975

Status: (+ +) 6"-8" DBH; 18'-26' h. (15) 1975.

- S3. J37. (12) 1963. (—) 1968 (1). Severely infested with red spider mite.  
Status: Fi 1973.

- S99. A47. (4) 1971, Ts from Arboretum nursery, B&B, 4' h.  
Status: (+ +) 8' h. (4) 1975.

***Picea pungens* Donahey selection**

**Donahey Selection Blue Spruce**

- S30. B1. (1) 1969, 4' B&B. Tips are golden in spring on new growth.  
Status: (+ +) 8' h. (1) 1975.

***Picea pungens* 'Hoopsii'**

**Hoops Colorado Spruce**

S95. B1. (2) 1974, 4' B&B. Ts from Arboretum nursery where they had been growing since 1963.  
Status: (+) 5' h. (2) 1975.

***Picea pungens* 'Koster'**

**Koster Colorado Spruce**

S53. C3. (9) 1913.

Status: Re 1957.

S102. B1. (2) 1932.

Status: Fw 1949. Snow damage.

S102. H. (3) 1933. (1) 1936.

Status: Re 1950.

S95. B1. (2) 1960.

Status: (+ +) 3", 5" DBH; 18', 24' h. (2) 1975.

S95. O. (1) 1967.

Status: (+ +) 3" DBH; 16' h. (1) 1975.

S95. O. (1) 1967.

Status: (+ +) 4" DBH; 29' h. (1) 1975.

***Picea pungens* 'Moerheimi'**

**Moerheim Colorado Spruce**

S8. B1. (2) 1935, 10-yr. grafts.

Status: (+) 7", 8" DBH; 27', 31' h. (2) 1975.

S62. B1. (2) 1955.

Status: (+ +) 4", 5" DBH; 19', 25' h. (2) 1975.

S95. O. (1) 1967, 15-yr. graft.

Status: (+ +) 4" DBH; 12' h. (1) 1975.

S99. J10. (3) 1970, 8'-10' h. Ts from Arboretum nursery with tree spade. Set in gaps in White Pine windbreak.

Status: (+) 3" DBH; 18' h. (3) 1975.

***Picea pungens* 'Montgomery'**

**Montgomery Colorado Spruce**

S133. B4. (2) 1974, 10-yr. grafts 2' h. Ts from Arboretum nursery where they had been growing since 1966.

Status: (+ +) 2' h. (2) 1975.

***Picea rubens* Sarg.**

**Red Spruce**

S92. J19. (49) 1918, 2-2 planting stock set 6' x 6'.

Plantation Age	DBH	Height	No. of Trees	Year
10		6'	30	1927
14	2"	10'	30	1931
18	3"	15'	30	1936
22			29	1939
38			8	1956

1939 Re (1) thinning. 1956 (21) Fw severe wind damage.

Status: Fw 1956.

S92. B1. (1) 1921.

Status: F 1963.

S99. B4. (80) 1956. (50) 1957. Replanted (30) 1957. (80) Ts 1958 to Southeastern Test Farm.  
Status: Ts 1958.

S99. J25. (20) 1958, spaced 10' x 10'. (1) cut 1970. Under branch forming new leader. Shortest trees in wet spot. Japanese Honeysuckle throughout plot and into trees.

Plantation Age	DBH	Height	No. of Trees	Year
18	3"	17'	16	1975

Status: (+) 1"-5" DBH; 6'-24' h. (16) 1975.

S99. B1. (2) 1964.

Status: (+) 10' h. (2) 1975.

S99. J40. (14) 1970, Ts from Arboretum nursery with tree spade, 5'-8' h. Set in gaps in established White Pine windbreak.

Status: (+) 3" av. DBH; 12'-16' h. (14) 1975.

***Picea schrenkiana* Fisch. and Mey.**

**Schrenk Spruce**

Suk. B1. 1930.

Status: Fs 1933.

***Picea sitchensis* (Bong.) Carr.**

**Sitka Spruce**

S11. C1. (3) 1917. (2) 1933.

Status: Re 1947.

S72. K13. (49) 1930, 2-4 planting stock.

Status: Fp 1930.

S72. K13. (49) 1930, 2-4 planting stock. Plot is falling apart. Heavy red spider mite infestation 1972. Heavy 22" snowfall caused considerable breakage Dec. 1974.

Plantation Age	DBH	Height	No. of Trees	Year
46	6"	30'	10	1975

Status: (—) 5"-8" DBH; 22'-35' h. (10) 1975.

S119. F25. (15) 1969, 15" h. (15) 1970, (1) Fm. Ground cover is mowed grass.

Plantation Age	DBH	Height	No. of Trees	Year
7	1"	6'	14	1975

Status: (+) 5'-8' h. (14) 1975.

***Picea smithiana* (Wall.) Boiss.**

**Himalayan Spruce, Indian Spruce**

S9. J22. (26) 1918, 15" tall. Failed drought.

Status: Fc 1930.

S8. O. (2) 1931.

Status: F 1941.



*Picea* sp., Jones selection

**Jones Selection Spruce**

S8. B1. (1) 1931, graft.

Status: (+ +) 12" DBH; 41' h. (1) 1975.

*Picea wilsoni* Mast.

**Wilson Spruce**

S6. B1. (4) 1931. (2) 1936.

Status: (+) 9", 11" DBH; 35', 43' h. (2) 1975.

**PINUS: PINE**

Eighty-three different species, varieties, or cultivars of pines have been planted in the Arboretum since the initial planting of Red and Rocky Mountain Ponderosa Pine in 1907. There are many pine plantings still standing which are from 60 to 70 years old. Pines have been set out in various mixtures with other pines, conifers, and many different hardwood mixtures. Years ago hardwood weed control was attempted by discing underneath pine plantations. As a result, many areas of pine have had their root systems and butts of trees damaged and are now infected with various root and butt rots. In most instances pines now blown over by high winds have decay in their roots. Considerable breakage was caused in many older plantations of Scotch, White, and Ponderosa Pines by a 22-inch snowfall in December 1974. Some trees up to 12 inches DBH were broken off.

*Pinus albicaulis* Engelm.

**Whitebark Pine**

Suk. B. 1931.

Status: Fw 1934.

*Pinus aristata* Engelm.

**Bristlecone Pine**

S9. C1. (5) 1912, 3-3 planting stock. (5) Ts 1919.

(5) 1933. (2) 1968. (1) 1970, (1) Fi, carpenter ants in base of tree and larger roots.

Status: (+) 15' h. (1) 1975.

S14. G21. (25) 1933. (5) 1939.

Status: Re 1947.

S48. C3. (1) 1936, 3-4 planting stock.

Status: Re 1947.

S124. C4. (2) 1961, 3-5 planting stock. Plants re-set 1962, 1963, 1964. (1) 1964.

Status: NP 1968.

*Pinus attenuata* Lemm.

**Knobcone Pine**

S33. G21. (9) 1935, 2-3 planting stock.

Status: Fc 1936.

*Pinus balfouriana* Grev. & Balf.

**Foxtail Pine**

Suk. B. 1930. Exposed site.

Status: Fs 1931.

*Pinus banksiana* Lamb.

**Jack Pine**

S53. E5a. (124) 1911, 2-1 planting stock set 6' x 6', 20" h. Plot pruned.

Plantation Age	DBH	Height	No. of Trees	Year
11	3"	18'	116	1922
17	4"	26'	113	1927
22	5"	34'	96	1932
26	5"	37'	94	1936
28			83	1938
29			75	1939
33	5"	42'	62	1944
46	7"	50'		1957

1938 (11) Re thinning. 1939 (8) Re thinning. 1961 severe heavy wet snow and high winds.

Status: Re 1962.

S53. E5b. (110) 1911, 2-1 planting stock set 6' x 6', 20" h. Plot unpruned.

Plantation Age	DBH	Height	No. of Trees	Year
11	3"	16'	103	1922
22	5"	33'	93	1932
26	5"	36'	87	1936
29			77	1939
33	6"	43'	62	1944

1939 (10) Re thinning. 1961 severe heavy wet snow and high winds.

Status: Re 1962.

S53. C3. (105) 1914, 2-3 planting stock, 15" h. (52) 1930.

Status: Re 1959.

S53. G14. (30) 1914, 2-4 planting stock set 6' x 6', 3' h.

Plantation Age	DBH	Height	No. of Trees	Year
11	4"	22'	29	1925
17	5"	31'	29	1931
22	5"	39'	28	1936
47			1	1961
62	14"	70'	1	1975

March 1961 high winds and heavy snow destroyed plot.

Status: (+) (1) 1975.

S53. J40. (105) 1914, 2-2 planting stock set 4' x 4'.

Plantation Age	DBH	Height	No. of Trees	Year
11	3"	24'	103	1926
25			38	1938
26	5"	45'	38	1939
27			37	1940
37			4	1951

1938 (25) Re thinning. 1939 (1) Re thinning.  
1951 (33) Fw severe wind damage.  
Status: Fw 1951.

S53. G11. (24) 1915, 2-5 planting stock set 6' x 6', 40" h.

Plantation Age	DBH	Height	No. of Trees	Year
11	2"	12'	22	1925
17	3"	17'	17	1931
21	3"	22'	13	1936

March 1961 heavy snow and severe winds destroyed plot.

Status: Fw 1961.

***Pinus banksiana*—*Pinus sylvestris***

**Jack Pine—Scotch Pine**

S9. G10. (25) 1917, 2-1 planting stock set 6' x 6'.  
17 Jack Pine, 8 Scotch Pine.

Plantation Age	DBH		Height		No. of Trees		Year
	JP	SP	JP	SP	JP	SP	
9	3"	3"	19'	18'	17	8	1925
15	4"	5"	28'	31'	14	8	1931
20	4"	7"	33'	39'	13	8	1936
45					0	4	1961
52						4	1968
59		14"		66'		4	1975

March 1961 heavy snows and severe winds caused considerable windthrow. Jack Pine eliminated.

Status: (+) 11"-15" DBH; 61'-69' h. (4) 1975.

***Pinus banksiana***

**Jack Pine**

S100. H5. (50) 1956, set 4' x 4'. Heavy snows and severe winds destroyed plot 1961.

Status: Fw 1961.

S100. C4. (1) 1958.

Status: (+ +) 7" DBH; 33' h. (1) 1975.

***Pinus bungeana* Zucc. ex Endl.**

**Lacebark Pine**

S130. C1. (1) 1928, 2-8 planting stock.

Status: (+) multistem; 44' h. (1) 1975.

S131. G21. (31) 1933, 2-2 planting stock. (4) 1939.

Status: Re 1947.

S131. G21. (1) 1937.

Status: Fp Fs 1939.

S99. O. (1) 1949, 2-19 planting stock. Overtopped by adjacent trees. Branches killed from salt drift from highway.

Status: (+) multistemmed; 27' h. (1) 1975.

S68. C4. (1) 1955. (+) multistem; 24' h. (1) 1974. On lee side of tall pine, branches badly broken by heavy snow Dec. 1974, at least two-thirds of crown destroyed.

Status: (—) 15' h. (1) 1975.

***Pinus canariensis* C. Smith**

**Canary Pine**

Suk. O. 1931. Winter 1935-36 very severe.

Status: Fc 1936.

***Pinus cembra* L.**

**Swiss Stone Pine**

S2. F1. (18) 1913, 2-0 planting stock. (1) 1933.

Exposed site, poorly drained.

Status: Fs 1934.

Suk. G25. (6) 1970, 2'. Ts from Arboretum nursery.

Status: (+) 3' h. (6) 1975.

***Pinus cembra* var. *sibirica* Loud.**

**Siberian Stone Pine**

Suk. B. 1928. Exposed site.

Status: Fs 1931.

***Pinus cembroides* var. *edulis* (Engelm.) Voss**

**Mexican Pinyon Pine**

S9. C3. (10) 1916, 8" h. (5) 1933. Winter 1935-36 very severe.

Status: Fc 1936.

S99. B1. (35) 1919, 1-2 planting stock, 7" h. (28) 1930. (4) 1933. Winter 1935-36 very severe.

Status: Fc 1936.

Suk. E47. (28) 1931. Needle blight.

Status: Fd 1945.

Suk. H. 1954.

Status: Fc 1956.

***Pinus cembroides* var. *monophylla* (Torr.) Voss**

**Singleleaf Pine**

Suk. O. 1931. Winter 1935-36 very severe.

Status: Fc 1936.

***Pinus cembroides* var. *parryana* Voss**

**Parry Pinyon Pine**

Suk. O. 1931. Winter 1935-36 very severe.

Status: Fc 1936.

***Pinus contorta* Dougl. ex Loud.**

**Lodgepole Pine**

Suk. E55. 1919. Two severe winters in a row.

Status: Fc 1959.

***Pinus contorta* var. *latifolia* Engelm. ex S. Wats.**

**Rocky Mountain Lodgepole Pine**

S9. G26. (30) 1918, set 6' x 6', 1' h.

Plantation Age	DBH	Height	No. of Trees	Year
8	2"	9'	24	1925
14	3"	16'	18	1931
19	4"	23'	8	1936
33			1	1950
42			0	1959

1959 Re, two severe winters in a row killed tree.  
1950 heavy wet snow caused breakage, temperature  
—16° F.

Status: Fc 1959.

S99. E55. (65) 1919, 2-1 planting stock set 6' x 6'.

Plantation Age	DBH	Height	No. of Trees	Year
7	2"	9'	63	1925
13	3"	19'	59	1931
18	4"	26'	42	1936
32			1	1950
41			0	1959

1950 heavy wet snow caused breakage, temperature to —16° F. 1959 two severe winters in a row killed tree.

Status: Fc 1959.

### *Pinus coulteri* D. Don

#### Coulter Pine

Suk. B. 1954. Exposed site. High winds in April.

Status: Fc 1956.

### *Pinus densiflora* S. & Z.

#### Japanese Red Pine

S2. G16. (30) 1914, 2-2 planting stock set 6' x 6'.

Ground cover mowed grass. Many killed by disease.

Plantation Age	DBH	Height	No. of Trees	Year
11	3"	18'	28	1928
13			26	1930
22	4"	32'	21	1936
55			1	1969
60	10"	68'	1	1975

Status: (+) 1975.

Suk. F1. (25) 1915. (19) 1930. Removed for Flowering Crabapple plot.

Status: Re 1950.

S65. A29. (10) 1927. Severe winter 1958-59.

Status: Fd 1959.

S132. C4. (1) 1958. Severe winter 1958-59.

Status: Fd 1959.

S99. G23. (16) 1958, set 10' x 10'. Severe winter 1958-59.

Status: Fd 1959.

S107. G16. (16) 1969, 3-0 planting stock. Ground cover is mowed grass. (12) 1970, (4) winter killed, poor drainage. 1972 (5) Fs, poor drainage complicated by use of plastic sheeting for weed control.

Status: (+) 7' h. (7) 1975.

### *Pinus densiflora* 'Umbraculifera' Mayr.

#### Umbrella Japanese Red Pine

S125. B1. (1) 1932. Multistem. (+ +) 25' h.

(1) 1974. 75% of crown destroyed by 22" snowfall Dec. 1974. Ground cover is mowed grass.

Status: (—) 20' h. (1) 1975.

### *Pinus echinata* Mill.

#### Shortleaf Pine

S100. C4. (2) 1958. Ground cover is mowed grass.

Status: (+ +) 5", 6" DBH; 23' h. (2) 1975.

S99. G23. (16) 1961. Set 10' x 10'. Site shaded from adjacent pine plantings. Ground cover mowed grass. (8) Fc, Fs.

Plantation Age	DBH	Height	No. of Trees	Year
15	3"	17'	8	1975

Status: (+) 1"-5" DBH; 8'-24' h. (8) 1975.

S99. H30. (93) 1961, set 10' x 10'. Most trees lost were due to snow breakage. In 1975 five are badly bent and eight have tops broken out from heavy 22" snowfall of Dec. 1974.

Plantation Age	DBH	Height	No. of Trees	Year
15	6"	29'	45	1975

Status: (+) 3"-8" DBH; 18'-34' h. (45) 1975.

### *Pinus echinata* x *rigida*

S41. G23. (5) 1936, 2-2 planting stock. Uprooted by heavy wet snow 1953.

Status: Fw 1953.

### *Pinus flexilis* James

#### Limber Pine

S53. F2. (12) 1915, 2-0 planting stock. (7) 1933. (2) 1957.

Status: (—) 10"-12" DBH; 45'-52' h. (2) 1975.

S53. F1. (4) 1915, 2-0 planting stock. (3) 1957. (3) 1975 12" av. DBH; 48' av. h. Exposed wet site. Largest tree badly bent, trunk full of decay.

Status: (—) 8"-15" DBH; 45'-52' h. (3) 1975.

S53. O. (1) 1916, 2-1 planting stock. In 1963 destroyed by high winds, temperature —20° F.

Status: Fw 1963.

S53. G29. (46) 1917, 2-2 planting stock set 6' x 6'. Site wet in Spring. Ground cover is mowed grass.

Base of trees and larger roots damaged by mowing.

Plantation Age	DBH	Height	No. of Trees	Year
9	1"	8'	45	1925
15	3"	17'	41	1931
19	4"	21'	39	1936
51			6	1968
53			5	1970
55			4	1972
59	12"	60'	4	1975

1950 heavy snow damage. 1968 (3) windthrown. 1970 (1) windthrown. 1972 (1) windthrown. Windthrown trees had decay in roots.

Status: (+) 9"-12" DBH; 56'-67' h. (4) 1975.

S119. C4. (2) 1961, 2-4 planting stock.

Status: (+ +) 4', 5' h. (2) 1975.

Suk. G31. (27) 1967, set 10' x 10'. 1975 largest tree is 11' h.

Status: (+) 6' av. h. (24) 1975.

### *Pinus griffithi* M'Clelland

#### Himalayan Pine

S92. G27. (36) 1918, 2-2 planting stock set 6' x 6', 10" h.

Plantation Age	DBH	Height	No. of Trees	Year
8	1"	9'	23	1925
9			15	1926
14	4"	17'	9	1931
28			2	1945

1926 (8) Fd, pruning disease (*Cenangium abietis*). 1945 severe heavy wet snow. 1961 three severe winters followed by heavy wet snow and severe winds in March 1961 destroyed remainder of plot.

Status: Fw 1961.

S99. C4. (2) 1961. (1) Fd 1967, bleeding trunk canker.

Status: (+) 13" DBH; 16' h. (1) 1975.

S99. G27. (16) 1962, set 10' x 10'.

Plantation Age	DBH	Height	No. of Trees	Year
14	1"	11'	7	1975

Status: (+) 1"-3" DBH; 6'-17' h. (7) 1975.

### *Pinus griffithi* x *Pinus strobus*

S97. J23. (17) 1964, set 10' x 10'. 1975 stand closed, ground cover is duff from fallen needles.

Plantation Age	DBH	Height	No. of Trees	Year
12	6"	33'	17	1975

Status: (+ +) 2"-9" DBH; 10'-38' h. (17) 1975.

### *Pinus halepensis* Mill.

#### Aleppo Pine

Suk. O. 1925. Temperatures to -12° F. in 1929 severely damaged pine.

Status: Fc 1931.

### *Pinus halepensis* var. *bruita* (Ten.) Henry

#### Erectcone Aleppo Pine

S26. C4. (2) 1964, 35-year-old plants, Ts from nursery.

Status: (+ +) 3", 4" DBH; 20' h. (2) 1975.

### *Pinus heldreichii* var. *leucodermis*

(Ant.) Markgraf ex Fitch.

#### Bosnian Redcone Pine

S107. B5. (8) 1969, 6" h. (8) Ts 1974 H.

Status: (+) 6"-12" h. (8) 1974.

### *Pinus jeffreyii* Grev. & Balf.

#### Jeffrey Pine

S9. C3. (1) 1908, 18" h.

Status: Re 1947.

S9. C4. 1910. Two severe winters in a row, temperatures to -16° F., heavy wet snow 1950. Severe winds in 1951 damaged trees.

Status: Re 1951.

S9. F1. (3) 1910. Two severe winters in a row, temperatures to -16° F., heavy wet snow 1950. Severe winds in 1951 damaged trees.

Status: Re 1951.

S99. G28. (35) 1918, 2-1 planting stock set 6' x 6', 12" h.

Plantation Age	DBH	Height	No. of Trees	Year
8	2"	8'	31	1925
14	3"	13'	28	1931
18	5"	20'	15	1936
57	17"	66'	2	1975

Status: (+ +) largest tree is 22" DBH; 82' h. 1975.

S44. G28. (75) 1933, 3-0 planting stock. Underplanted. (66) 1934. (31) 1939.

Status: Fs 1947.

### *Pinus koraiensis* S. & Z.

#### Korean Pine

S9. G25. (30) 1918, 2-2 planting stock set 6' x 6', 15" h.

Plantation Age	DBH	Height	No. of Trees	Year
8	1"	7'	21	1925
14	3"	17'	21	1931
18	4"	26'	19	1936
50	10"	60'	2	1968
54	12"	69'	1	1971

Last two trees killed by Ips Bark Beetles.

Status: Fi 1972.

S99. C4. (1) 1961, graft. Replaced two times and failed.

Status: Fp 1967.

### *Pinus lambertiana* Dougl.

#### Sugar Pine

Suk. B. 1928.

Status: Fc 1929.

Suk. H7. 1962.

Status: Fc 1963.



*Pinus massoniana* Lamb.

**Masson Pine**

Suk. O. 1916. Re change in landscaping.

Status: Re 1942.

*Pinus monticola* Dougl.

**Western White Pine**

S44. G21. (6) 1939, 3-6 planting stock. (5) 1939.

Status: Fs 1945.

S108. J15. (18) 1956 set 8' x 8'.

Status: Fc 1956.

S29. G18. (2) 1971, 2-4 planting stock, 3' h. Very little root system when received.

(1) 1972, (1) Fp. (1) Fd 1974, root disease.

Status: Fd 1974.

*Pinus monticola* x *strobus*

S60. J15. (17) 1956.

Status: F 1956.

*Pinus mugo* Turra

**Swiss Mountain Pine**

S92. C3. (7) 1912. (6) 1933.

Status: Re 1947.

S92. O. (10) 1913. (10) 1933. Change in landscaping.

Status: Re 1942.

S92. G22. (35) 1914, 2-2 planting stock, 1' h. (32) 1930. Shaded out.

Status: Fs 1940.

S92. F1. (12) 1915. (12) 1929. (11) 1933. Re 1950 for Flowering Crabapple plot.

Status: Re 1950.

S92. J37. (75) 1919, 2-6 planting stock. (48) 1929.

Status: Fs 1945.

S85. O. (1) 1955.

Status: (+ +) 14' h. (1) 1975.

*Pinus mugo* var. *mugo* (Scop.) Zenari

**Mugho Swiss Mountain Pine**

S9. G23. (19) 1918, 4-2 planting stock. (17) 1933.

Fs, became too shady.

Status: Fs 1940.

S9. A1. (1) 1919.

Status: Re 1959.

S85. O. (1) 1955. Single stem lawn tree, very severely damaged by Sapsuckers.

Status: (—) 6" DBH; 21' h. (1) 1975.

S85. O. (2) 1956. Soil swept out of shed piled on top of roots. Foliage injured from heavy use of herbicide.

Status: (—) 5' h., 8' spread. (2) 1975.

S85. C4. (1) 1957.

Status: 7' h., 9' spread (1) 1974. Badly bent by 22" snowfall Dec. 1974.

S85. O. (2) 1957.

Status: Fs 1961.

*Pinus mugo* var. *pumilio* (Haenke) Zenari

**Shrubby Swiss Mountain Pine**

S11. C3. (1) 1924.

Status: Fs 1945.

S102. C3. (3) 1933, grafts. (2) 1936.

Status: Fs 1940.

*Pinus mugo* var. *rostrata* (Ant.) Gord.

**Tree Swiss Mountain Pine**

Suk. O. 1922.

Status: Fc 1931.

*Pinus mugo* var. *rotundata* (Link) Gord.

**Hoopes Swiss Mountain Pine**

Suk. B. 1933.

Status: Fp Fs 1933.

*Pinus muricata* D. Don

**Bishop Pine**

Suk. O. 1929. Winter 1935-36 very severe.

Status: Fc 1936.

*Pinus nigra* Arn.

**Austrian Pine**

S53. D10. (289) 1912, 2-3 planting stock set 6' x 6'.

Originally two plots, one pruned and one unpruned.

By 1947 could not distinguish between plots. All trees have died out in wet northwest area of plot.

Plantation Age	DBH	Height	No. of Trees	Year
13	4"	21'	267	1925
19	5"	30'	251	1932
24	6'	37'	206	1936
26			159	1938
31	7'	47'	154	1944
37			38	1949
40	9"	56'	38	1952
45	10"	58'	38	1957
64	12"	72'	34	1975

1938 thinning. 1949 tip blight (*Diplodia pinea*) killed trees. 1970 two trees struck by lightning. 1973 tip blight severe, two pines died.

Status: (—) 7"-17" DBH; 65'-74' h. (34) 1975.

S53. J8. (1) 1912, mixed with Ponderosa Pine, 2-2 planting stock set 8' x 8'. Badly infected with tip blight, quite pitchy from extensive sapsucker work.

Status: (—) 20" DBH; 68' h. (1) 1975.

S53. O. 1912. 2-2 planting stock.

Status: (+ +) 14"-18" DBH; 60'-65' h. (3) 1975.

S53. O. 1912. 2-2 planting stock.

Status: (+ +) 21" DBH; 64' h. (1) 1975.

S53. O. (7) 1912, 2-2 planting stock.

Status: (+ +) 13"-23" DBH; 61' h. (7) 1975.

S74. J12. (100) 1913, 2-3 planting stock set 6' x 6', 1' h. Removed half of plot 1950. Removed remainder of plot 1955 to make room for Crabapple plantings.

Plantation Age	DBH	Height	No. of Trees	Year
12	4"	19'	100	1925
17			93	1930
19			77	1932
19	6"	32'	77	1932
23	6"	36'	76	1936
26			69	1939

1932 thinning. 1939 thinning.

Status: Re 1950, 1955.

***Pinus nigra—Pinus strobus***

**Austrian Pine—White Pine**

S53. G12. (55) 1914, 1917. (30) A.P. 1914; (25) W.P. 1917, 2-4 planting stock set 6' x 6'.

Plantation Age		DBH		Height		No. of Trees		Year
AP	WP	AP	WP	AP	WP	AP	WP	
11	9	3"	3"	16'	13'	25	17	1925
17	15	5"	4"	26'	26'	24	8	1931
22	20	6"	4"	33'	32'	23	8	1936
27	25					22	7	1941
61	59	14"	10"	73'	71'	12	1	1975

1941 thinning.

Status: (+) 10"-16" DBH; 70'-74' h. (12) 1975.

***Pinus nigra***

**Austrian Pine**

S9. O. (2) 1914. Lawn planting.

Status: (+) 14", 20" DBH; 51', 58' h. (2) 1975.

***Pinus nigra—Picea abies—Pinus sylvestris***

**Austrian Pine—Norway Spruce—Scotch Pine**

S9. O. (83) 1917, windbreak planting, single row, (13) Norway Spruce mixed in. Austrian Pine heavily infected with tip blight 1972-1975. (4) 1973 Fd, tip blight. (3) 1975 Fd, tip blight.

Status: Austrian Pine: (—) 10"-18" DBH; 28'-56' h. (79) 1975.

Norway Spruce: (+) 8"-20" DBH; 39'-67' h. (13) 1975.

Scotch Pine: (—) 9", 12" DBH; 31', 43' h. (2) 1975.

***Pinus nigra***

**Austrian Pine**

S9. O. 1917.

Status: (+ +) 21"-27" DBH; 49'-56' h. (3) 1975.

***Pinus nigra—Pinus ponderosa* var. *scopulorum***

**Austrian Pine—Rocky Mountain Ponderosa Pine**

S9. G8. (25) 1917, (13) A.P., (12) P.P., 2-2 planting stock set 6' x 6'.

Plantation Age	DBH		Height		No. of Trees		Year
	AP	PP	AP	PP	AP	PP	
10	3"	3"	13'	13'	13	12	1926
15	5"	4"	23'	20'	13	12	1931
20	6"	4"	30'	26'	12	12	1936
25					12	10	1941
58	13"	11"	63'	67'	7	3	1974
59	13"	13"	64'	71'	7	1	1975

Dec. 1974 2 Fw, *P. ponderosa* var. *scopulorum* 8"-12" DBH. Snapped stems under 22" snowfall.

Status: (+) 10"-16" DBH; 61'-68' h. (7) 1975.

***Pinus nigra***

**Austrian Pine**

S92. C3. (1) 1918.

Status: Re 1962.

S92. D30. (66) 1918, 2-2 planting stock set 6' x 6'. (Mixed with var. *maritima*.)

Plantation Age	DBH	Height	No. of Trees	Year
10	4"	17'	60	1927
19	5"	31'	54	1936
20			45	1938
26	6"	37'	42	1943
58	12"	80'	12	1975

1938 thinning. All trees in wet eastern area of plot have died out. 1975 dense undergrowth of blackberry bushes.

Status: (+) 9"-16" DBH; 75'-83' h. (12) 1975.

***Pinus nigra***

**Austrian Pine**

Suk. O. 1919. Present 1964.

Status: NP 1968.

S90. M2. (10) 1934, 2-1-2 planting stock underplanted in hardwoods.

Status: Fs 1947.

S100. C4. (1) 1956, 2-3 planting stock. Killed by tip blight.

Status: Fd 1974.

S97. A28. (25) 1963. 1975 stand closed, ground cover is duff from fallen needles, 5" av. DBH; 20' av. h.

Status: (+ +) 2"-6" DBH; 18'-22' h. (21) 1975.

***Pinus nigra* var. *caramanica* (Loud.) Rehd.**

**Crimean Pine**

S99. C4. (1) 1914. Seeded in place. Was nursery bed at time. Present ground cover is mowed grass.

Status: (+ +) 22" DBH; 58' h. (1) 1975.

*Pinus nigra* var. *maritima* (Ait.) Melville  
(var. *poiretiana*)

**Corsican Pine, Calabrian Pine**

S99. O. 1914. Present 1964.

Status: NP 1968.

S99. C1. (2) 1914. (1) 1956, (1) Re.

Status: Re 1962.

S99. C4. (1) 1914, seeded in place. Was nursery bed at time. Ground cover is mowed grass.

Status: 18" DBH; 67' h. (1) 1975.

S99. F2. (100) 1914. 17 windthrown 1962-63. Exposed wet site. Ground cover is grass and burdock.

Plantation Age	DBH	Height	No. of Trees	Year
62	13"	87'	20	1975

Two largest trees are dying from change in grade due to road building.

Status: (+) 6"-20" DBH; 80'-90' h. (20) 1975.

S99. D30. (640) 1917, 2-1 planting stock set 3' x 3'.

Set out as two plots, one pruned and one unpruned.

By 1947 no difference and plots could not be separated.

Plantation Age	DBH	Height	No. of Trees	Year
5			120	1922
7	2"	12"	114	1924
11	4"	23'	81	1928
15	5"	30'	76	1931
20	6"	39'	73	1936
21			60	1938
26			53	1942
27	6"	50'	51	1944
59	17"	87'	1	1975

Thinned to 6' x 6' spacing 1922. Thinned 1938.

Thinned 1942. Trees have died out in wet areas.

Status: (+ +) 17" DBH; 87' h. (1) 1975.

S99. D31. (279) 1917, 2-1 planting stock set 3' x 3'.

Set out as two plots, one pruned and one unpruned.

By 1947 no difference and plots could not be separated. 1975 very heavy undergrowth, mostly blackberries. Trees have died out on east side of plot which is very wet.

Plantation Age	DBH	Height	No. of Trees	Year
7	2"	11'	279	1924
9			241	1926
11	2"	21'	228	1928
15	3"	28'	202	1931
20	4"	35'	150	1936
21			105	1938
25			97	1941
26			78	1942
27	5"	46'	59	1944
36	7"	57'		1953
40	9"	66'		1957
59	10"	81'	36	1975

Thinned 1926, 1938, 1941, 1942.

Status: (—) 6"-14" DBH; 78'-87' h. (36) 1975.

S99. O. (11) 1917. Ground cover is lawn area.

Status: (+ +) 9"-19" DBH; 66'-70' h. (11) 1975.

S99. D30c. (22) 1918, 1-3 planting stock set 6' x 6'.

Site wet where trees have failed.

Plantation Age	DBH	Height	No. of Trees	Year
10	4"	20'	22	1927
19	6"	36'	21	1936
20			16	1938
25	7"	45'	15	1943
58	17"	87'	1	1975

Thinned 1938.

Status: (+) 1975.

*Pinus nigra* var. *maritima*—

*Pinus sylvestris*—*Pinus strobus*

**Corsican Pine—Scotch Pine—White Pine**

S99. A17. (154) 1919, 27 Corsican 2-3 planting stock. Scotch Pine (77) 1917, 2-2 planting stock set 6' x 6'. White Pine (50) 1917. Originally set as two plots, one pruned, one unpruned. No significant difference by 1936 and plots could not be separated. 1975 heavy undergrowth of Blackberry, Poison Ivy, Black Locust, and Black Cherry.

Plantation Age	DBH	Height	No. of Trees	Year
	CP	CP	CP	
9	3"	19'	25	1928
14	4"	27'	25	1932
18	4"	32'	23	1936
30	8"	62'		1949
57	13"	78'	4	1975

Plantation Age	DBH		Height		No. of Trees		Year
	SP	WP	SP	WP	SP	WP	
11	3"		18'		72		1928
16	5"		28'		72	35	1932
20	5"		34'		20		1936
32	8"		62'				1949
59	14"	14"	72'	70'	8	5	1975

Status: Corsican: (+ +) 10"-15" DBH; 76'-81' h. (4) 1975.

White: (+) 10"-21" DBH; 68'-72' h. (5) 1975.

Scotch: (+) 10"-19" DBH; 68'-75' h. (8) 1975.

*Pinus nigra* var. *maritima*

**Calabrian Pine, Corsican Pine**

S90. M2. (14) 1934, 2-1-2 planting stock. Underplanted in hardwoods.

Status: Fs 1947.

S114. A26. (81) 1939, 2-5 planting stock. 1975 dense undergrowth White Ash, Blackberry, Black

Raspberry, and Black Locust. Heavy duff from fallen needles. Periodically mowed.

Plantation Age	DBH	Height	No. of Trees	Year
10	2"	14'		1949
18	4"	26'		1957
47	8"	71'	29	1975

All side branches pruned off 1949, 1953. Winter 1962-63, 3 winter killed and 40 injured.

Status: (+ +) 4"-13" DBH; 65'-73' h. (29) 1975.

*Pinus nigra* var. *maritima*—*Pinus sylvestris* var. *rigensis*—*Pinus sylvestris* French's sel.

Corsican Pine—Riga Scotch Pine—French's Selection Scotch Pine

S99. A34. (14) 1960. Corsican Pine. Set quaternate diagonal rows.

S116. A34. (14) 1960. Riga Scotch Pine. Set quaternate diagonal rows.

S42. A34 (28) 1960. French's Scotch Pine. Set alternate diagonal rows.

Plantation Age	DBH			Height			No. of Trees			Year
	RSP	CP	FSP	RSP	CP	FSP	RSP	CP	FSP	
14							13	14	18	1973
15							13	10	12	1974
16	6"	5"	5"	37'	34'	34'	13	10	12	1975

To 1973 1 Riga, 10 French's Scotch Pine removed in thinning, trees were suppressed. 1974, 4 Corsican and 7 French's Scotch Pine destroyed by 22" snowfall, Riga Scotch Pine was not damaged.

Status: Riga Scotch Pine (+ +) 4"-8" DBH; 30'-42' h. (13) 1975.

Corsican Pine (+ +) 3"-7" DBH; 20'-48' h. (10) 1975.

French's Scotch Pine (+ +) 3"-7" DBH; 18'-45' h. (12) 1975.

*Pinus parviflora* S. & Z.

Japanese White Pine

S9. C3. (2) 1909, 2' h. (1) 1933. Very exposed windy site. Ground cover is mowed grass.

Status: (—) 9" DBH; 20' h. (1) 1975.

*Pinus peuce* Griseb.

Balkan Pine, Macedonian Pine

S9. O. (2) 1909, 15" h.

Status: Fw 1947.

S9. G24. (24) 1918. Final trees upset by heavy snow 1948.

Plantation Age	DBH	Height	No. of Trees	Year
8	1"	9'	18	1927
14	2"	14'	17	1931
18	3"	19'	15	1936
29			2	1947

Status: Fw 1948.

*Pinus pinaster* Sol.

Cluster Pine

Suk. B. 1932.

Status: Fc 1934.

*Pinus ponderosa* Laws.

Ponderosa Pine

S53. E55. (35) 1919, 1-2 planting stock set 6' x 6'.

Plantation Age	DBH	Height	No. of Trees	Year
9	4"	13'	31	1927
13	5"	20'	31	1931
18	6"	27'	25	1936
21			1	1939

Status: Fc 1960.

S100. C4. (1) 1958.

Status: Fc 1960.

S132. C4. (2) 1962. Ground cover is mowed grass.

Status: (+ +) 4" DBH; 15', 18' h. (2) 1975.

*Pinus ponderosa* var. *scopulorum* Engelm.

Rocky Mountain Ponderosa Pine

S74. C4. (283) 1970, 2-0 planting stock set 4' x 4'.

Exposed site. Ground cover is mowed grass.

Plantation Age	DBH	Height	No. of Trees	Year
21	4"	21'	52	1927
35			47	1941
62			3	1968
69	14"	61'	3	1975

Thinning 1941. Windthrow 1962-63, 44 trees.

Status: (+) 13"-15" DBH; 55'-71' h. (3) 1975.

S74. O. (1) 1909. (1) 1970, 14" DBH. Growing on lawn.

Status: (+ +) 15" DBH; 71' h. (1) 1975.

*Pinus ponderosa* var. *scopulorum*—

*Acer platanoides* L.

Rocky Mountain Ponderosa Pine—Norway Maple

S53. E6a. (25) 1909, 2-2 planting stock set 6' x 10'.

Interplanted 25 Norway Maple 1915.

Plantation Age		DBH		Height		No. of Trees		Year
PP	NM	PP	NM	PP	NM	PP	NM	
17	10	3"	1"	16'	16'	22	23	1925
23	16	5"	3"	25'	28'	18	23	1931
28	21	6"	4"	30'	35'	6	23	1936
	28		6"		46'	0	22	1944
	61		10"		74'		20	1975

Pines overtopped and completely suppressed by 1944. 1975 no undergrowth.

Status: Norway Maple: (+) 4"-17" DBH; 40'-78' h. (20) 1975.

Ponderosa Pine: Fs 1944.

*Pinus ponderosa* var. *scopulorum*—*Picea abies*  
**Rocky Mountain Ponderosa Pine—Norway Spruce**  
 S53. E6b. (25) 1909, 2-2 planting stock set 6' x 10'.  
 Interplanted 25 Norway Spruce 1916.

Plantation Age		DBH		Height		No. of Trees		Year
PP	NS	PP	NS	PP	NS	PP	NS	
17	10	4"	1"	18'	8'	18	18	1925
23	16	5"	2"	24'	13'	16	18	1931
28	21	6"	2"	30'	15'	14	18	1936
35	28	7"	4"	37'	15'	10	14	1944
67	60	13"	4"	60'	24'	1	2	1975

Site wet in Spring and poorly drained except where Black Walnut is growing. Undergrowth slight of Elderberry and Tatarian Honeysuckle.

Status: Black Walnut: (+ +) 21" DBH; 65' h. (1) 1975.

Ponderosa Pine: (—) 13" DBH; 60' h. (1) 1975.

Norway Spruce: (—) 4" DBH; 24' h. (2) 1975.

S53. E6c. (158) 1909, 2-2 planting stock set 6' x 6'.  
 Site wet in Spring.

Plantation Age		DBH	Height	No. of Trees	Year
17		3"	17'	108	1925
23		4"	23'	107	1931
28		5"	28'	95	1936
35		6"	37'	64	1944
67		12"	66'	13	1975

Winter 1962-63 15 trees windthrown. Dense undergrowth of Blackberry, Devils-Walkingstick, Tatarian Honeysuckle, Elderberry. Pine in very poor condition.

Status: (—) 5"-16" DBH; 50'-74' h. (13) 1975.

S53. J8. (39) 1912, 2-2 planting stock set 8' x 8'.  
 On well-drained hillside. Exposed to winds.

Plantation Age		DBH	Height	No. of Trees	Year
13		4"	18'	36	1925
20		6"	28'	34	1932
24		7"	32'	34	1936
64		13"	65'	8	1975

Winter 1962-63 some trees windthrown. Plot includes one Austrian Pine 20" DBH, 65' h. heavily infested with tip blight; one Canada Hemlock 7" DBH, 40' h.; one Shingle Oak (*Quercus imbricaria*) 7" DBH, 25' h. Underplanted with azaleas 1970-1974.

Status: (+) 8"-18" DBH; 63'-69' h. (8) 1975.

*Pinus ponderosa* var. *scopulorum*—*Pinus resinosa*  
**Rocky Mountain Ponderosa Pine—Red Pine**

S53. G9. (41) 1914, 2-4 planting stock set 6' x 6'.  
 25 Ponderosa Pine interplanted with 16 Red Pine.



Various conifers have been used as windbreaks. This mixed conifer windbreak was outplanted in 1970.

Plantation Age	DBH		Height		No. of Trees		Year
	PP	RP	PP	RP	PP	RP	
12	3"	1"	16'	13'	25	16	1925
18	4"	2"	24'	20'	25	13	1931
23	5"	3"	31'	25'	23	6	1936
28					20	5	1941
61	11"		71'		3		1975

Thinning in 1941. Removed Red Pine 1947 as they were suppressed by the Ponderosa Pine.

Status: (+) 9"-15" DBH; 69'-73' h. (3) 1975.

S53. F1. (109) 1915. (109) 1930. Removed for Flowering Crabapple planting.

Status: Re 1950.

S53. F21a. (210) 1915, 2-2 planting stock set 6' x 6'.  
 100 thinned, 110 not thinned, all trees pruned.

Plantation Age	DBH		Height		No. of Trees		Year
	T	NT	T	NT	T	NT	
7	1"	1"	6'	6'	97	106	1922
11	3"	2"	11'	11'	97	106	1925
16	4"	4"	19'	19'	94	102	1930
21	5"	5"	25'	27'	82	89	1936
24					63	89	1939
29	6"	6"	35'	35'	55	57	1944

Thinned 1939.

Status: Combined into Plot F21 as natural mortality had reduced number of stems in unthinned portions to essentially the same as thinned portion. Windstorms and heavy wet snows in 1945, 1950, and 1951 caused windthrow, making it impossible to separate plots.

S53. F21b. (105) 1915, 2-2 planting stock set 6' x 6'.  
 50 trees thinned, 55 trees unthinned, no trees pruned.



Plantation Age	DBH		Height		No. of Trees		Year
	T	UT	T	UT	T	UT	
7	1"	1"	6'	6'	50	55	1922
10	3"	3"	11'	13'	47	55	1925
16	4"	4"	20'	20'	46	52	1930
21	4"	5"	26'	28'	40	46	1936
24					25	46	1939
29	6"	6"	38'	36'	20	31	1944

Thinned 1939.

Status: Combined into plot F21 as windstorms and heavy wet snows in 1945, 1950, and 1951 caused windthrow, making it impossible to separate plots.

S53. F21c. (410) 1915, 2-2 planting stock set 3' x 6'. 200 trees pruned and thinned, 210 trees unpruned and unthinned.

Plantation Age	DBH		Height		No. of Trees		Year
	T	UT	T	UT	T	UT	
7	1"	1"	5'	5'	200	208	1922
11	2"	2"	11'	11'	200	207	1925
16	3"	3"	18'	18'	174	189	1930
16					109	189	1931
21	4"	4"	26'	25'	105	147	1936
24					65		1939
29	5"	5"	35'	34'	64	79	1944

Thinning 1931, 1939.

Status: Combined into Plot F21 as natural mortality and windthrow had reduced number of stems in unthinned portions to essentially the same as thinned portion. Windstorms and heavy snows in 1945, 1950, and 1951 caused windthrow, making it impossible to separate plots.

S53. F21d. (205) 1915, 2-2 planting stock set 3' x 6'. 100 trees thinned, 105 trees unthinned. No pruning.

Plantation Age	DBH		Height		No. of Trees		Year
	T	UT	T	UT	T	UT	
7	1"	1"	5'	6'	100	105	1922
11	2"	2"	11'	12'	94	105	1925
16	3"	3"	19'	20'	80	90	1930
16					54	90	1931
21	4"	4"	26'	26'	50	74	1936
24					30		1939
29	5"	5"	35'	37'	30	38	1944

Thinned 1931, 1939.

Status: Combined into Plot F21 as natural mortality and windthrow had reduced number of stems in unthinned portions to essentially the same as thinned portion. Windstorms and heavy snows in 1945, 1950, and 1951 caused windthrow, making it impossible to separate plots.

S53. F21e. (1271) 1915, 2-2 planting stock set 3' x 3'. 620 trees thinned, 651 trees unthinned. All trees pruned.

Plantation Age	DBH		Height		No. of Trees		Year
	T	UT	T	UT	T	UT	
7	1"	1"	6'	6'	608	644	1922
11	2"	2"	11'	11'	597	630	1925
16	3"	3"	19'	19'	395	405	1930
16					205		1931
21	4"	4"	27'	27'	200	283	1936
24					110		1939
29	5"	5"	37'	36'	108	113	1944

Thinnings 1931, 1939.

Status: Combined into Plot F21 as natural mortality and windthrow had reduced number of stems in unthinned portions to essentially the same as thinned portions. Windstorms and heavy snows in 1945, 1950, and 1951 caused windthrow, making it impossible to separate plots.

S53. F21f. (410) 1915, 2-2 planting stock set 3' x 3'. 200 trees thinned, 210 trees unthinned. No trees pruned.

Plantation Age	DBH		Height		No. of Trees		Year
	T	UT	T	UT	T	UT	
7	1"	1"	6'	6'	200	208	1922
11	2"	2"	11'	11'	194	207	1925
16	3"	3"	19'	19'	136	135	1930
16					78		1931
21	4"	3"	26'	26'	71	97	1936
28					61		1942
29	5"	5"	37'	37'	37	43	1944

Thinnings 1931, 1942.

Status: Combined into Plot F21 as natural mortality and windthrow had reduced number of stems in unthinned portions to essentially the same as thinned portions. Windstorms and heavy snows in 1945, 1950, and 1951 caused windthrow, making it impossible to separate plots.

S53. F21. (2611) 1915, 2-2 planting stock. Plots a, b, c, d, e, f combined.

Plantation Age	DBH		Height		No. of Trees		Year
	T	UT	T	UT	T	UT	
7	1"		6'		2581		1922
11	2"		11'		2539		1925
16	3"		19'		1898		1930
16					1559		1931
21	4"		26'		1284		1936
24					1100		1939
29	5"		36'		675		1944
42	9"		61'				1957
61	11"		68'		177		1975

Thinnings 1931, 1939, 1942. Severe winds 1963 blew down swath through plot. Heavy 22" snow-fall Dec. 1974 (45) Fw 7"-14" DBH, crowns broken out of trees or stems snapped. Entire center of plot destroyed. Live crowns had shortened up to less than 20% of total height from crowding. 1975 undergrowth heavy stand of Blackberries, scattered Black Raspberries, Devils-Walkingstick,

Pokeberry, Multiflora Rose, Elderberry, Smilax, Sassafras, Black Cherry.

Status: (—) 6"-17" DBH; 60'-70' h. (177) 1975.

***Pinus ponderosa* var. *scopulorum*—*Pinus nigra*  
Rocky Mountain Ponderosa Pine—Austrian Pine**

S9. G8. (12) 1917, 12". See *Pinus nigra*—*Pinus ponderosa* var. *scopulorum* for data.

***Pinus ponderosa* var. *scopulorum*  
Rocky Mountain Ponderosa Pine**

S9. D30. (22) 1918, 1-2 planting stock set 6' x 6'.

Group planting with Scotch, White, Red, Austrian, and Corsican Pines. Area where Ponderosa Pine failed is wet and poorly drained.

Plantation Age	DBH	Height	No. of Trees	Year
10	2"	14'	22	1927
19	4"	27'	13	1936
20			12	1938
25	4"	30'	9	1943

Thinning 1938.

Status: Fs prior 1968.

***Pinus pumila* (Pall.) Reg.  
Japanese Stone Pine**

Suk. B. 1930. Exposed site.

Status: Fs 1932.

***Pinus pungens* Lamb  
Tablemountain Pine**

S99. E45. (41) 1931, 2-2 planting stock set 6' x 6'.

Plantation Age	DBH	Height	No. of Trees	Year
4	1"	6'	38	1936
12	3"	19'	38	1943
44	10"	62'	6	1974
45	10"	62'	4	1975

Two trees broken off by 22" snowfall Dec. 1974.

Status: (+) 9"-13" DBH; 56'-66' h. (4) 1975.

S124. H8. (50) 1955. (4) 1956, (46) Fp Fs.

Status: Re 1957.

S124. C4. (1) 1957. Ground cover is mowed grass.

Status: (+) 8" DBH; 24' h. (1) 1975.

S124. C4. (1) 1961. Ground cover is mowed grass.

Status: (+) 7" DBH; 21' h. (1) 1975.

***Pinus resinosa* Ait.**

**Red Pine**

Suk. O. 1907. Present 1964.

Status: NP 1968.

S92. J13a. (272) 1912, 2-2 planting stock set 4' x 4'.

**Forest plantation of Red Pine set in 1914.**



Plantation Age	DBH	Height	No. of Trees	Year
13	3"	19'	261	1925
15	3"	21'	242	1927
18			151	1930
20	4"	28'	151	1932
24	4"	31'	140	1936

Removed 29 trees in thinning 1930. Destroyed by ice storm 1938.

Status: Fw 1938.

S92. J13b. (143) 1912, 2-2 planting stock set 4' x 8'.

Plantation Age	DBH	Height	No. of Trees	Year
13	3"	18'	129	1925
15	3"	20'	129	1927
20	4"	28'	109	1932
20			98	1932
24	5"	31'	96	1936

Thinning 1932. Destroyed by ice storm 1938.

Status: Fw 1938.

S9. E13. (144) 1912, 2-2-2 planting stock set 6' x 6'.

Eastern Arborvitae underplanted 1914, Fs 1955.

Growth so poor it wasn't measured.

Plantation Age	DBH	Height	No. of Trees	Year
14	4"	22'	105	1927
19	5"	28'	99	1931
24	6"	34'	99	1936
26			77	1938
30	6"	41'	72	1943
41	7"	53'		1953
64	10"	75'	35	1975

Thinning 1938. Dec. 1974 (3) Fw 9"-10" DBH; heavy wet 22" snowfall broke crowns out of trees. Largest tree is 15" DBH, 84' h. Heavy underbrush Ash, some Blackberry, Black Raspberry, and Ailanthus.

Status: (—) 7"-15" DBH; 72'-84' h. (35) 1975.

#### *Pinus resinosa—Picea abies*

##### Red Pine—Norway Spruce

S9. E14. (85) 1912. See *Picea abies—Pinus resinosa* for data.

#### *Pinus resinosa*

##### Red Pine

S92. J25. (390) 1912, 2-2 planting stock. Additional (292) planted 1915. (292) 1930. All but



Eleven-year-old planting of Himalayan-White Pine hybrids. Trees average 6 inches in diameter and 33 feet tall.

12 destroyed by glaze storm in 1938. Windthrow in 1947 destroyed remainder.

Status: Fw 1947.

S92. G7a. (120) 1914, 2-3 planting stock set 6' x 6'. 65 trees thinned, 55 trees unthinned.

Plantation Age	DBH		Height		No. of Trees		Year
	T	UT	T	UT	T	UT	
12	3"	3"	15'	14'	63	54	1925
17	4"	4"	22'	21'	63	54	1930
22					55	53	1935
22	4"	5"	27'	27'	55	53	1935
24					47	53	1938

Thinnings 1935, 1938.

Status: Combined into plot G7 after 1944 as natural mortality and trees destroyed by glaze and wind made it impossible to locate plots.

S92. G7b. (105) 1914, 2-3 planting stock set 6' x 6'. 55 trees thinned, 50 trees unthinned.

Plantation Age	DBH		Height		No. of Trees		Year
	T	UT	T	UT	T	UT	
17	4"	4"	21'	21'	46	43	1930
22					39	40	1935
22	4"	5"	27'	27'	39	40	1935
26					33	40	1939

Thinnings 1935, 1939.

Status: Combined into plot G7 after 1944 as natural mortality and trees destroyed by windthrow made it impossible to locate plots.

S92. G7c. (270) 1914, 2-3 planting stock set 3' x 6'. 135 trees thinned, 135 trees unthinned.

Plantation Age	DBH		Height		No. of Trees		Year
	T	UT	T	UT	T	UT	
12	2"	2"	14'	13'	121	127	1925
17	3"	3"	20'	19'	118	126	1930
17					67	126	1930
22	4"	4"	30'	24'	66	116	1935
22					52	116	1936
24					21	104	1938
30	6"	4"	33'	31'	21	74	1944

Thinned 1930, 1936, 1938.

Status: Combined into plot G7 after 1944 as natural mortality and trees destroyed by windthrow made it impossible to locate plots.

S92. G7d. (180) 1914, 2-3 planting stock set 3' x 6'. Half of plot thinned, half unthinned.

Plantation Age	DBH		Height		No. of Trees		Year
	T	UT	T	UT	T	UT	
17	3"	3"	21'	20'	83	80	1930
17					47	80	1930
22	5"	4"	30'	25'	46	71	1935
22					36	71	1936
25					13	55	1938
27					12		1940
30	5"	4"	35'	32'	12	39	1944

Thinned 1930, 1936, 1938, 1940.

Status: Combined into plot G7 after 1944 as natural mortality and trees destroyed by windthrow made it impossible to locate plots.

S92. G7e. (900) 1914, 2-3 planting stock set 3' x 3'. Half of plot thinned, half unthinned.

Plantation Age	DBH		Height		No. of Trees		Year
	T	UT	T	UT	T	UT	
9	2"	2"	11'	11'	432	430	1923
13	2"	2"	17'	16'	380	395	1927
16	3"	3"	20'	20'	342	356	1930
16					184	356	1930
22	4"	3"	26'	25'	180	274	1935
22					54	274	1935
24					51		1938
26					49		1940
30	5"	4"	44'	38'	49	114	1944

Thinned 1930, 1935, 1938, 1940.

Status: Combined into plot G7 after 1944 as natural mortality and trees destroyed by windthrow made it impossible to locate plots.

S92. G7f. (300) 1914, 2-3 planting stock set 3' x 3'. Half of plot thinned, half unthinned.

Plantation Age	DBH		Height		No. of Trees		Year
	T	UT	T	UT	T	UT	
9	2"	1"	11'	10'	149	144	1923
13	2"	2"	16'	15'	134	135	1927
16	2"	2"	19'	18'	117	123	1930
16					67	123	1930
22	3"	3"	24'	24'	67	93	1935
25					53		1938
26					48		1940
30	4"	4"	36'	36'	48	58	1944

Thinned 1930, 1938, 1940.

Status: Combined into plot G7 after 1944 as natural mortality and trees destroyed by windthrow made it impossible to locate plots.

S92. G7. (1875) 1914, 2-3 planting stock. Plots a, b, c, d, e, f combined. Undergrowth consists of Staghorn Sumac, Amur Maple, Bittersweet, Tatarian Honeysuckle, Barberry, Blackberry, American Holly, Yews.

Plantation Age	DBH	Height	No. of Trees	Year
17	3"	21'	1551	1930
17			1256	1930
22			960	1935
22	4"	27'	960	1935
26			669	1939
30	5"	36'	588	1944
43	8"	55'		1957
62	10"	71'	120	1975

Thinned 1930, 1935, 1938, 1939, 1940. 1952 removed 216.65 cu. ft. (8) Fw Dec. 1974, 8"-13"



DBH, heavy 22" wet snow broke crowns out of trees or snapped stems.

Status: Red Pine: (—) 6"-14" DBH; 70'-74' h. (120) 1975.

Northern Red Oak: (—) 2"-11" DBH; 16'-77' h. (18) 1975.

S92. K26. (300) 1914, 2-4 planting stock set 6' x 6', 1'-1½' h. Underplanted under mixed hardwoods. Additional (107) 1915. 120 destroyed by surface fire 1916. Replanted (120) 1917, 2-4 planting stock. (120) 1918 replanted to replace those killed by heavy sod. Site pastured until 1911. East end of plot is level. West end on narrow ridge where trees are 4" to 6" DBH and 18'-25' h. Large hardwoods left in plot have damaged adjacent pines. Huge oaks in adjacent plots have also damaged pines. Present understory of scattered hardwoods to 5" DBH includes Sassafras, Black Cherry, Red Maple, and Cucumber Magnolia.

Plantation Age	DBH	Height	No. of Trees	Year
1-4			407	1918
58-62	8"	70'	80	1975

Status: White Oak (*Quercus alba*): (+) 25" DBH; 79' h. (2) 1975.

Northern Red Oak (*Quercus rubra*): (+) 26" DBH; 84' h. (1) 1975.

Cucumber tree (*Magnolia acuminata*): (+) 19" DBH; 81' h. (1) 1975.

Red Pine: (+) 4"-13" DBH; 18'-77' h. (80) 1975.

***Pinus resinosa*—*Pinus ponderosa* var. *scopulorum***  
**Red Pine—Rocky Mountain Ponderosa Pine**

S53. G9. (16) 1914. See *Pinus ponderosa* var. *scopulorum*—*Pinus resinosa* for data.

***Pinus resinosa***

**Red Pine**

S92. F1. (42) 1915, 2-4-5 planting stock. (35) 1930. Removed to establish Flowering Crabapple



Snow damage to Red Pine.



plot. (5) 1968. (5) 1975 9" av. DBH. Site wet.  
Status: (—) 7"-12" DBH; 57' h. (5) 1975.

***Pinus resinosa—Pinus strobus***

**Red Pine—White Pine**

S92. E1. (256) 1917, 2-2 planting stock set 6' x 6' in alternating rows of Red and White Pine.

Plantation Age	DBH		Height		No. of Trees		Year
	RP	WP	RP	WP	RP	WP	
9	3"	2"	14'	13'	122	102	1925
15	5"	4"	25'	26'	121	74	1931
20	5"	5"	32'	33'	120	67	1936
22					101	56	1938
27	6"	7"	38'	44'	81	49	1944
40	9"	11"	57'	70'			1957
59	11"	15"	75'	80'	14	22	1975

Thinned 1938, 1952. Tops of many pines have been broken out in the past by snows or high winds. 1975 very heavy undergrowth of Blackberry, Elderberry, Devils-Walkingstick, Tatarian Honeysuckle, Grape, Barberry, Norway Maple.

Status: White Pine: (+) 12"-20" DBH; 75'-90' h. (22) 1975.

Red Pine: (—) 8"-14" DBH; 68'-80' h. (14) 1975.

***Pinus resinosa***

**Red Pine**

S92. D30. (44) 1918, 2-1 planting stock set 6' x 6'. Plantings with White, Scotch, Austrian, Corsican, and Ponderosa Pine. Trees in wet eastern section of plot have died.

Plantation Age	DBH	Height	No. of Trees	Year
10	3"	16'	38	1927
19	5"	30'	37	1936
21			32	1938
25	6"	36'	29	1943
58	10"	72'	5	1975

Thinned 1938. Dense undergrowth of Blackberry bushes.

Status: (—) 9"-12" DBH; 70'-74' h. (5) 1975.

***Pinus resinosa—Pseudotsuga menziesii***

**Red Pine—Douglasfir**

S92. A19. (90) 1919, 2-2 planting stock set 6' x 6' in alternating rows of Red Pine and Douglasfir.

Plantation Age	DBH		Height		No. of Trees		Year
	RP	DF	RP	DF	RP	DF	
14	4"	1"	21'	13'	45	39	1932
18	6"	2"	27'	16'	44	26	1936
30	8"		48'			0	1949
57	12"		68'		13		1975

Douglasfir all dead by 1947, suppressed by Red Pine. 1975 dense undergrowth of Blackberry, Red

Maple, Multiflora Rose, Elderberry, Black Locust. Plot periodically mowed.

Status: Douglasfir: Fs 1947.

Red Pine: (+) 9"-14" DBH; 64'-70' h. (13) 1975.

***Pinus resinosa—Maclura pomifera* (Raf.) Schneid.**

**Red Pine—Osageorange**

S100. B7d. (128) 1922, set 6' x 6' in alternating rows. (64) Red Pine 2-2 planting stock, (64) Osageorange 1-0 planting stock. Site wet and poorly drained. Ground cover is mowed grass.

Plantation Age	DBH		Height		No. of Trees		Year
	RP	O	RP	O	RP	O	
11	1"	2"	8'	15'	14	63	1932
15	3"	3"	15'	20'	14	63	1937
20					13	50	1942
21	5"	4"	25'	29'	11	50	1943
50					3	10	1971
54	10"	10"	54'	45'	3	10	1975

Thinned 1942. Removed dead and dying trees 1971. Osageorange with short boles and heavy crowns.

Status: Osageorange: (+ +) 7"-13" DBH; 39'-51' h. (10) 1975.

Red Pine: (+) 9"-10" DBH; 53'-55' h. (3) 1975.

***Pinus resinosa—Quercus rubra* L.**

**Red Pine—Northern Red Oak**

S100. B7g. (128) 1922, set 6' x 6' in alternating rows. (64) Red Pine 2-2 planting stock, (64) Northern Red Oak 2-0 planting stock.

Plantation Age	DBH		Height		No. of Trees		Year
	RP	RO	RP	RO	RP	RO	
11	2"	2"	13'	17'	37	59	1932
15	3"	3"	21'	25'	37	59	1936
20					18	50	1942
21	5"	4"	28'	35'	18	49	1943
44					3	9	1965
54	9"	13"	61'	75'	3	9	1975

Thinned 1942. Removed trees to establish holding nursery for rhododendrons. Remaining trees are left to afford high shade, Re 1965.

Status: Northern Red Oak: (+ +) 10"-17" DBH; 73'-77' h. (9) 1975.

Red Pine: (+) 9"-11" DBH; 58'-70' h. (3) 1975.

***Pinus resinosa—Pinus sylvestris***

**Red Pine—Scotch Pine**

S100. L10. (300) 1949, 2-2 planting stock, set 10' x 10' in alternating rows. Removed for Christmas trees.

Status: Re 1963.

***Pinus resinosa*—*Castanea mollissima* Bl.**

**Red Pine—Chinese Chestnut**

S100. B4. (50) 1950, 2-2-1 planting stock. 50 Red Pine set 5' x 5' in established Chestnut plantation. Not successful. Red Pine suppressed. Christmas tree planting.  
Status: Re 1956.

***Pinus resinosa*—*Castanea mollissima* 'Kuling'**

**Red Pine—Kuling Chinese Chestnut**

S100. B4. (16) 1951. 16 Red Pine underplanted in established Chestnut stand as Christmas trees. (6) 1953. Not successful. Pines suppressed by Chestnut.  
Status: Re 1953.

***Pinus resinosa*—*Pinus sylvestris*—*Castanea mollissima* 'Meiling'**

**Red Pine—Scotch Pine—Meiling Chinese Chestnut**

S100. B4. (16) 1951. Underplanting of Red and Scotch Pines in established Chestnut plantation as Christmas trees. Not successful. Pines suppressed by Chestnut. (4) 1953.  
Status: Re 1953.

***Pinus resinosa***

**Red Pine**

S100. L12. (300) 1951, 3-0 planting stock set 10' x 10' with tree planter. Replanted (100) 1964. Replanted (50) 1965. Replanted (50) 1966.  
Status: Re 1966.

S100. L13. (100) 1951, 3-0 planting stock set 10' x 10'.  
Status: Re 1961.

S100. L1. 1952, 2-2 planting stock set 4' x 4'. Christmas tree planting.  
Status: Re 1962.

S100. L2. 1952, 2-2 planting stock set 4' x 4'. Christmas tree planting.  
Status: Re 1962.

S100. L3. 1952, 2-2 planting stock set 4' x 4'. Christmas tree planting.  
Status: Re 1962.

S100. O. 1954. Present 1964.  
Status: NP 1968.

S100. B4. (60) 1956. Pruned and fertilized. Replanted (51) 1957. Ts Southeastern Test Farm 1958.  
Status: Re 1958.

S100. C4. (1) 1956. 2-2-4 planting stock. B.R. Exposed site.  
Status: Fp 1957.

S100. C4. (1) 1958. 2-2-6 planting stock. B.R. Exposed site.  
Status: Fp 1959.

S100. C4. (1) 1961. 2-2-6 planting stock. B.R. Exposed site.

Status: Fp 1962.

S100. C4. (1) 1963, 2-2-8 planting stock. B&B. Exposed site.

Status: (+ +) 5" DBH; 16' h. (1) 1975.

***Pinus rigida* Mill.**

**Pitch Pine**

S9. C4. (70) 1907, set 4' x 4'. All girdled by mice 1915, resprouted. Exposed site.

Plantation Age	DBH	Height	No. of Trees	Year
21	6"	27'	55	1927
33	7"	41'	55	1939
58			6	1964
62			4	1968
69	17"	55'	4	1975

Present ground cover is mowed grass.

Status: (+ +) 16"-18" DBH; 58'-70' h. (4) 1975.

S40. C3. (12) 1913, 2-2 planting stock. (1) 1955.  
Status: Re 1960.

S40. K17. (190) 1914, 2-3 planting stock, irregularly spaced 5'-6'. Underplanting in mixed hardwoods. (133) 1930. Hardwood stand closed over pines and suppressed pines prior to 1968.  
Status: Fs prior 1968.

S40. F1. (49) 1915. (28) 1930. Removed to establish Flowering Crabapple planting.  
Status: Re 1951.

S40. G11. (1) 1915.  
Status: (—) 10" DBH; 58' h. (1) 1975.

S100. H5. (50) 1956.  
Status: Re 1961.

***Pinus sabiniana* Dougl.**

**Digger Pine**

S129. K16. (5) 1932, 2-1 planting stock.  
Status: Fc 1939.

S44. G21. (5) 1935, 2-2 planting stock.  
Status: Fc 1939.

S100. J22. (16) 1965, set 10' x 10'. 1975 all very crooked, affected by adjacent tall plantings. Ground cover is mowed grass.

Plantation Age	DBH	Height	No. of Trees	Year
11	2"	9'	5	1975

Status: (—) 2"-3" DBH; 4'-12' h. (5) 1975.

***Pinus strobiformis* Engelm.—*Pinus strobus***

**Border White Pine—Eastern White Pine**

S97. G18. (47) 1967, 5-yr. plants set 10' x 10'. 25 Border White Pine, 22 Eastern White Pine.

Plantation Age	DBH		Height		No. of Trees		Year
	BWP	EWP	BWP	EWP	BWP	EWP	
3					17	16	1969
7					16	10	1973
9	2"	2"	11'	15'	16	8	1975

1973 (6) Re thinning Eastern W.P. 1975 (2) Fi, Black Pine Aphid, Eastern White Pine.

Status: BWP (+ +) 1975; EWP (+ +) 1975.

S29. T. (1) 1971, Ts from Arboretum nursery with tree spade, 4' h. Set in windbreak, very exposed and windy site.

Status: (+) 8' h. (1) 1975.

### EASTERN WHITE PINE

White Pine has been extensively planted on many different sites and in combinations with many other species. One windbreak planting was set out along a roadside about 1890, apparently before the Ohio Agricultural Experiment Station was moved to Wooster. Many White Pines growing on exposed sites have had their tops broken out by snows or winds, especially when they have attained heights of 60 to 70 feet. Many of the older plantings 60 years and older are infected with root and butt rot.

#### *Pinus strobus* L.

##### Eastern White Pine

Suk. O. Planted approximately 1890 (from ring count). Windbreak planting along west side of road. At least 140 trees had been set on 6-foot centers. Many trees have been lost over the years through lightning strikes, windthrow, snow breakage, and root rot. Many trees are now infected with root and butt rot (*Polyporus schweinitzii*). Weeds and grass have been killed underneath trees with herbicides. Sheet erosion is developing and roots are becoming exposed. In 1975 average DBH is 17" and average height is 68'. Trees have all lost their tops from wind or snow breakage.

Status: (—) 10"-25" DBH; 35'-70' h. (65) 1975.

S74. C4. (81) 1907, 2-0 planting stock set 4' x 4': 35 trees died after thinning 1911. (18) Fw 1963, windthrown. (1) Fw 1968, windthrown. Exposed site.

Plantation Age	DBH	Height	No. of Trees	Year
5			65	1911
6			30	1912
21	6"	24'	30	1927
30	7"	33'	28	1936
37	8"	37'	24	1944
57			6	1964
61			1	1968
69	21"	67'	1	1975

Status: (+) 1975.

S74. O. 1909. Windbreak planting with other pines. 2-2 planting stock.

Status: (+ +) 11"-21" DBH; 36'-79' h. (14) 1975.

S74. O. (4) 1909. Lawn planting. 2-2 planting stock. Tops gone, exposed to severe winds. 1974 crowns badly broken from 22" snowfall.

Status: (—) 18"-24" DBH; 48'-69' h. (4) 1975.

S74. O. (752) 1909, 2-2 planting stock. Undergrowth consists of Hedge Maple, Tatarian Honeysuckle, Jetbead, Black Cherry, Blackgum, White Ash, Poison Ivy. Carpenter ants caused one tree to break off in wind. Some trees infected with root and butt rot (*Polyporus schweinitzii*). Many recent axe cuts through bark.

Plantation Age	DBH	Height	No. of Trees	Year
67	13"	85'	144	1975

Status: (+) 6"-21" DBH; 76'-92' h. (144) 1975.

S74. O. (8) 1909, 2-2 planting stock. Lawn planting. Tops gone, exposed to strong winds. 1974 crowns badly broken from 22" snowfall.

Status: (—) 11"-22" DBH; 45'-48' h. (8) 1975.

#### *Pinus strobus*—*Castanea dentata* (Marsh.) Berk.

##### Eastern White Pine—American Chestnut

S53. D13. (192) 1909, set 96 of each species in alternate rows on 6' x 6' spacing. White Pine 2-2 planting stock, Chestnut 3-0 planting stock. Chestnut all killed by Chestnut Blight (*Endothia parasitica*) by 1929, leaving Pine spaced 6' x 12'. 1975, very dense undergrowth of Blackberries.

Plantation Age	DBH	Height	No. of Trees	Year
13	4"	17'	76	1922
19	5"	25'	63	1928
22			60	1930
24	7"	33'	54	1932
28	8"	37'	54	1936
29			42	1938
35	10"	47'	38	1944
67	15"	55'	17	1975

Pines infected with root and butt rot (*Polyporus schweinitzii*). Trees windthrown in severe winds 1962-63. One tree windthrown 1970, Carpenter Ants (*Camponotus herculeanus pennsylvanicus*) had destroyed butt. 50 Hemlock (*Tsuga canadensis*) underplanted 1931. Tops of trees have been broken out by snows and high winds.

Status: Chestnut: Fd 1929.

Pine: (—) 10"-23" DBH; 50'-60' h. (17) 1975.

Hemlock: (+ +) 8" DBH; 30' h. (1) 1975.



**Tallest White Pine in Arboretum. Largest tree is 26 inches in diameter and 114 feet high. Trees were planted in 1914.**

### *Pinus strobus*

#### Eastern White Pine

S81. J28a. (210) 1911, 2-0 planting stock set 4' x 4'.

Plantation Age	DBH	Height	No. of Trees	Year
16	3"	23'	144	1926
21	4"	34'	91	1932
26	5"	40'	78	1936
31			23	1947
32			13	1948
33			6	1949

Windthrown 1947, 1948, 1949. Heavy wet snow in 1950 destroyed remainder of plot.

Status: Fw 1950.

S81. J28b. (910) 1911, 2-0 planting stock.

Plantation Age	DBH	Height	No. of Trees	Year
4			876	1914
16	4"	25'	104	1926
21	5"	34'	73	1932
26	6"	41'	63	1936

Thinned 1914, 1926, 1932, 1936. Severe wind damage 1948.

Status: Re 1950.

S74. O. (2) 1911, 2-4 planting stock.

Status: Re 1950.

### *Pinus strobus—Picea abies*

#### White Pine—Norway Spruce

S81. J2. (589) 1912, 2-5 planting stock set 5' x 6' in mixture, half of each species. (319) 1930. High winds and heavy wet snow in 1953 destroyed center of plot. Removed dead spruce and pine Feb. 1956. (3) Fw 1973, tornado broke stems 14"-16" DBH. Exposed site.

Plantation Age	DBH		Height		No. of Trees		Year
	WP	NS	WP	NS	WP	NS	
64	12"	10"	72'	60'	62	8	1975

Tops of majority of Eastern White Pines have been broken out by winds or snows. Present undergrowth consists mainly of Sassafras to 5" DBH and Black Cherry to 10" DBH.

Status: White Pine: (+) 6"-21" DBH; 60'-87' h. (62) 1975.

Norway Spruce: (+) 7"-13" DBH; 55'-63' h. (8) 1975.

### *Pinus strobus*

#### White Pine

S74. J10. (272) 1912. See *Picea abies—Pinus sylvestris* for data.

### *Pinus strobus—Larix decidua*

#### Eastern White Pine—European Larch

S92. E11. (256) 1912. See *Larix decidua—Pinus strobus* for data.

### *Pinus strobus—Thuja occidentalis* L.

#### Eastern White Pine—Northern Whitecedar

S53. J5. (48) 1912, 24 of each species set 4' x 8'. Pine 2-3 planting stock, Whitecedar 2-5 planting stock.

Plantation Age	DBH		Height		No. of Trees		Year
	WP	WC	WP	WC	WP	WC	
13	4"	2"	25'	17'	18	13	1925

Status: Re 1960.

### *Pinus strobus—Picea abies*

#### Eastern White Pine—Norway Spruce

S74. J4a. (50) 1912. See *Picea abies—Pinus strobus* for data.

### *Pinus strobus*

#### Eastern White Pine

S81. K2. (1080) 1914, 2-4 planting stock. (753) 1929. Planted under scattered hardwoods.

Plantation Age	DBH	Height	No. of Trees	Year
62	10"	74'	239	1975

Many tops have been broken out by wind and snow. Ground cover east and west ends is Baltic Ivy. Center of plot heavy duff. Undergrowth scattered Roundleaf Dogwood, Red Maple, Chokecherry, Black Cherry, White Ash, and Shadbush. Large Oak and Beech growing over tops of White Pine. White Pine under hardwood short and in poor growing condition. Pines on hill average 11 feet shorter than Pines near creek. Many Oaks with decay in butt.

Status: White Pine: (+) 5"-26" DBH; 55'-114' h. (239) 1975.

White Oak: (+) 12"-25" DBH; 70'-75' h. (2) 1975.

White Ash: (+) 8"-12" DBH; 70' h. (3) 1975.

Northern Red Oak: (+) 25"-34" DBH; 83'-101' h. (4) 1975.

Black Oak: (+) 20"-36" DBH; 85'-90' h. (3) 1975.

Beech: (+ +) 12"-18" DBH; 70', 85' h. (2) 1975.

Black Cherry: (+ +) 13" DBH; 70' h. (1) 1975.

S81. G19. 1914, 2-4 planting stock spaced 6' x 6'. High winds 1963 blew down plot.

Status: Fw 1963.

S81. K18. (163) 1914, 2-7 planting stock set 6' x 6', 4' h. Site pastured until 1911. Steep west facing slope to creek, in some places practically a cliff. Scattered hardwoods in understory include Maple-leaf Viburnum, Black Cherry, Sugar Maple, White Ash, and American Hornbeam. (4) Fw, 8"-14" DBH, tornado July 9, 1972.

Plantation Age	DBH	Height	No. of Trees	Year
16			163	1930
61	8"	71'	96	1975

Dominant and codominant trees average 80' h. Small suppressed trees and trees growing on steep slope are 3"-5" DBH; 12'-30' h.

Status: (+ +) 3"-18" DBH; 12'-95' h. (96) 1975.

S81. O. (7) 1914, 8' h. Lawn planting. Tops broken out by winds or snows.

Status: (+) 14"-21" DBH; 63'-72' h. (4) 1975.

S81. G6a. (1200) 1914, 2-4 planting stock set 3' x 3'.

Plantation Age	DBH	Height	No. of Trees	Year
10	2"	14'	724	1923
13	3"	21'	439	1926
18	4"	28'	310	1931
23	5"	33'	245	1936
25			241	1938

Thinned 1938.

Status: Combined into Plot G6 after 1944 as due to natural mortality and windthrow it was no longer possible to separate subplots.

S81. G6b. (1200) 1914, 2-4 planting stock set 3' x 3'.

Plantation Age	DBH	Height	No. of Trees	Year
10	2"	14'	700	1923
13	3"	21'	345	1926
18	4"	27'	294	1931
19			254	1932
23	5"	32'	237	1936
26			198	1939
28	6"	41'	163	1944

Thinned 1926, removed 76; thinned 1932, 1939.

Status: Combined in Plot G6 after 1944 as due to natural mortality and windthrow it was no longer possible to separate subplots.

S81. G6c. (1600) 1914, 2-4 planting stock set 3' x 3'.

Plantation Age	DBH	Height	No. of Trees	Year
10	2"	14'	969	1923
10			769	1923
13	3"	22'	348	1926
18	4"	29'	318	1931
23	5"	35'	307	1936
28	7"	44'	180	1944

Thinned 1923; removed 126 thinning 1926; removed 72 thinning 1932; removed 68 thinning 1939; removed 1 thinning 1940; removed 1 thinning 1941; removed 20 thinning 1942.

Status: Combined into Plot G6 after 1944 as due to natural mortality and windthrow it was no longer possible to separate subplots.

S81. G6. (4000) 1914, 2-4 planting stock set 3' x 3'. Plots a, b, c combined.

Plantation Age	DBH	Height	No. of Trees	Year
10	2"	14'	2393	1923
13	3"	21'	1132	1926
18	4"	28'	922	1931
23	5"	33'	789	1936
28	6"	42'	584	1944
43	11"	72'		1956
62	13"	80'	146	1975

(747) removed in thinnings 1926, 1932, 1938, 1939, 1940, 1941, 1942. Hardwood brush controlled in early days by discing. Heavy windfall in 1962-63 removed swath through plot. Tops of many trees broken out. 1968 trees heavily infected with root rot (*Polyporus schweinitzii*). 1969 largest tree 24" DBH windthrown, roots and 10' of trunk decayed with brown cubical rot. Dec. 1974 (4) Fw 9"-10" DBH; heavy, wet, 22" snowfall broke crowns out of trees.

Status: (—) 6"-20" DBH; 68'-94' h. (146) 1975.



S81. G4a. (600) 1914, 2-4 planting stock set 3' x 6'.

Plantation Age	DBH	Height	No. of Trees	Year
12	3"	17'	360	1925
18	5"	28'	214	1931
23	5"	33'	160	1936
30	7"	43'	129	1944

Severe windstorm 1963 destroyed plot.

Status: Fw 1963.

S81. G4b. (600) 1914, 2-4 planting stock set 3' x 6'.

Plantation Age	DBH	Height	No. of Trees	Year
8	2"	11'	505	1922
14	4"	23'	294	1927
18	5"	29'	200	1931
23	6"	34'	147	1936
30	7"	43'	111	1944

Severe windstorm in 1963 destroyed plot.

Status: Fw 1963.

S81. G4c. (600) 1914, 2-4 planting stock set 3' x 6'.  
1975 undergrowth largely Blackberry and scattered Elderberry, Black Cherry, Grape, Poison Ivy, and patches of Partridge Berry.

Plantation Age	DBH	Height	No. of Trees	Year
8	2"	11'	486	1922
10	2"	13'	404	1923
18	5"	27'	178	1931
19			156	1932
23	5"	32'	142	1936
25			121	1939
30	7"	45'	105	1944
62	14"	87'	85	1975

Thinned 1932, 1939. 1968 trees heavily infected with root rot (*Polyporus schweinitzii*). Hardwood brush controlled in early days by discing. Dec. 1974 (2) Fw. Heavy, wet, 22" snowfall broke crowns out of trees 7", 11" DBH.

Status: (+) 9"-20" DBH; 85'-90' h. (85) 1975.

S81. F22a. (300) 1914, 2-4 planting stock set 6' x 6'.

Plantation Age	DBH	Height	No. of Trees	Year
12	3"	19'	217	1925
14			172	1928
17	6"	32'	148	1931
22	6"	37'	107	1936
30	8"	49'	81	1944

Thinned 1928. Severe winds destroyed plot 1963.

Status: Fw 1963.

S81. F22b. (300) 1914, 2-4 planting stock set 6' x 6'.

Plantation Age	DBH	Height	No. of Trees	Year
12	3"	18'	222	1925
17			163	1930
18	5"	29'	161	1931
22	6"	35'	113	1936
30	8"	46'	80	1944

Thinned 1930. Severe winds destroyed plot 1963.

Status: Fw 1963.

S81. F22c. (300) 1914, 2-4 planting stock set 6' x 6'.  
Now listed as plot F22.

Plantation Age	DBH	Height	No. of Trees	Year
12	3"	17'	217	1925
14	4"	22'	208	1927
19	6"	30'	151	1931
22	6"	34'	128	1936
30	8"	44'	91	1944
43	11"	70'		1957
62	15"	81'	39	1975

Tops of many trees broken out by snow or windstorms. Dec. 1974 (1) Fw. Heavy, wet 22" snowfall broke crown out of tree 9" DBH. 1975 many trees infected with Red Brown Butt Rot (*Polyporus schweinitzii*). Hardwood brush was controlled in early days by discing. Undergrowth heavy stand of Blackberries scattered, Multiflora Rose, Black Raspberry, Chokecherry, Elderberry, Staghorn Sumac.

Status: (+) 10"-19" DBH; 70'-85' h. (39) 1975.

S81. F1. (130) 1915. (124) 1929. Site wet. Removed to make room for Flowering Crabapple planting. (5) 1968. (4) 1973, (1) Fd decayed root system, windthrow. 1975 16" av. DBH; 66' av. h.

Status: (+) 10"-19" DBH; 65'-67' h. (4) 1975.

S81. F2. (100) 1915. (80) 1929. Removed all except six trees 1957. Heavy 22" snowfall tipped tree over, roots full of decay (*Polyporus schweinitzii*). Tree was 16" DBH; 73' h. Wet site. (5) 1975, 11" av. DBH; 72' av. h. Present ground cover is grass.

Status: (+) 10"-13" DBH; 65'-78' h. (5) 1975.

S92. E3a. (100) 1916, 2-3 planting stock set 4' x 6'.

Plantation Age	DBH	Height	No. of Trees	Year
12	3"	20'	76	1927
16	5"	29'	59	1931
16			45	1932
21	6"	37'	45	1936
22			39	1938
26			37	1941
27			31	1943
28	8"	46'	31	1944

Thinned 1932, 1938, 1941, 1943.

Status: Combined into plot E3 after 1944.

S92. E3b. (100) 1916, 2-1 set 4' x 4'.

Plantation Age	DBH	Height	No. of Trees	Year
12	3"	16'	84	1927
16	4"	26'	55	1931
16			42	1932
21	6"	42'	42	1936
22			37	1938
26			36	1941
27			30	1943
28	7"	46'	30	1944

Thinned 1932, 1938, 1941, 1943.

Status: Combined into Plot E3 after 1944.

S92. E3c. (100) 1916, 1-1 planting stock set 4' x 6'.

Plantation Age	DBH	Height	No. of Trees	Year
12	2"	16'	84	1927
16	4"	25'	58	1931
16			43	1932
21	5"	36'	41	1936
22			32	1938
27			31	1943
28	7"	47'	26	1944

Thinned 1932, 1938, 1943.

Status: Combined into Plot E3 after 1944.

S92. E3d. (125) 1916, 2-0 planting stock set 4' x 6'.

Plantation Age	DBH	Height	No. of Trees	Year
12	3"	17'	104	1927
16	4"	25'	82	1931
16			70	1932
21	5"	35'	64	1936
22			48	1938
27			36	1943
28	7"	47'	36	1944

Thinned 1932, 1938, 1943.

Status: Combined into Plot E3 after 1944.

S92. E3. (425) 1916 set 4' x 6'. Plots a, b, c, d combined. Well-drained site.

Plantation Age	DBH	Height	No. of Trees	Year
12	3"	17'	348	1927
16	4"	26'	254	1931
16			200	1932
21	6"	36'	192	1936
22			156	1938
26			153	1941
27			128	1943
28	7"	47'	123	1944
37	9"	54'		1953
41	10"	62'		1957
60	12"	85'	67	1975

Thinned 1932, 1938, 1941, 1943. Very light undergrowth of Boxelder, Black Cherry, Devils-Walkstick. Scattered White Pine, Yew, and Norway Spruce seedlings. Largest pine is 19" DBH, 93' h.

Status: (+) 8"-19" DBH; 75'-93' h. (67) 1975.

### *Pinus strobus*—*Pinus nigra*

#### Eastern White Pine—Austrian Pine

S53. G12. (55) 1914, 1917. See *Pinus nigra*—*Pinus strobus* for data.

### *Pinus strobus*—*Pinus resinosa*

#### Eastern White Pine—Red Pine

S99. E1. (128) 1917. See *Pinus resinosa*—*Pinus strobus* for data.

### *Pinus strobus*—*Pinus sylvestris*

#### Eastern White Pine—Scots Pine

S99. A17a. (63) 1917, (31) Scots Pine, (32) White Pine; Scots Pine 2-4 planting stock, White Pine 2-2 planting stock, all set 6' x 6'. Plot pruned.

Plantation Age	DBH		Height		No. of Trees		Year
	WP	SP	WP	SP	WP	SP	
11	3"	4"	20'	20'	26	31	1928
16	4"	5"	29'	29'	18	31	1932
20	5"	6"	33'	33'	17	31	1936

Status: Combined with A17b after 1936.

S99. A17b. (36) 1917, set 18 each species 6' x 6'. Scots Pine 2-4 planting stock, White Pine 2-2 planting stock. Plot unpruned.

Plantation Age	DBH		Height		No. of Trees		Year
	WP	SP	WP	SP	WP	SP	
11	3"	5"	19'	23'	11	17	1928
16	4"	5"	30'	33'	7	17	1932
20	4"	6"	33'	36'	7	17	1936

Status: Combined with A17a after 1936.

S99. A17. (99) 1917, set (49) Scots Pine, (50) White Pine 6' x 6'. Scots Pine 2-4 planting stock, White Pine 2-2 planting stock. Plots a, b combined.

Plantation Age	DBH		Height		No. of Trees		Year
	WP	SP	WP	SP	WP	SP	
11	3"	4"	20'	22'	37	48	1928
16	4"	5"	29'	31'	25	48	1932
20	5"	6"	33'	34'	24	48	1936
32	7"	8"					1949
40	11"	14"	50'	53'			1957
59	14"	14"	70'	72'	5	8	1975

1975, heavy undergrowth of Blackberry, Poison Ivy, Black Locust, and Black Cherry.

Status: White Pine: (+) 10"-21" DBH; 68'-72' h. (5) 1975.

Scots Pine: (+) 10"-19" DBH; 68'-75' h. (8) 1975.

### *Pinus strobus*

#### Eastern White Pine

S81. D30. (44) 1918, 2-2 planting stock set 6' x 6'.

Group plantings. Other groups in plot include Scots, Red, Austrian, Ponderosa, and Corsican Pines.

Plantation Age	DBH	Height	No. of Trees	Year
10	2"	16'	29	1927
19	4"	27'	13	1936
25	4"	31'	12	1943
58	10"	59'	3	1975

All pines in wet, eastern end of plot have died out. Tops of trees have been broken out by heavy snows. 1975 dense undergrowth of Blackberry bushes.

Status: (—) 9"-13" DBH; 40'-78' h. (3) 1975.

***Pinus strobus—Pseudotsuga menziesii***

**Eastern White Pine—Douglasfir**

S99. E50. (70) 1919, 35 of each species set 6' x 6', 2-2 planting stock. 1975 light undergrowth of Poison Ivy, Black Raspberry, and Green Ash.

Plantation Age	DBH		Height		No. of Trees		Year
	WP	DF	WP	DF	WP	DF	
9	2"	1"	14'	8'	27	32	1927
13	4"	2"	22'	14'	27	32	1931
18	6"	3"	29'	21'	27	22	1936
25	9"	4"	45'	27'	20	11	1944
57	16"	6"	90'	30'	13	1	1975

Snow and wind breakage destroyed many trees, especially Douglasfir. Remaining Douglasfir in very poor condition.

Status: White Pine: (+) 13"-19" DBH; 88'-94' h. (13) 1975.

Douglasfir: (—) 6" DBH; 30' h. (1) 1975.

***Pinus strobus***

**Eastern White Pine**

V. A7. 1920. Natural seeding from windbreak on west side, became established in open areas in Northern Red Oak planting. 1975 undergrowth of Blackberry, Black Locust, Black Cherry, Multiflora Rose, and Privet. White Pine 12" av. DBH; 72' av. h. Periodically mowed.

Status: (+) 8"-18" DBH; 65'-80' h. (33) 1975.

***Pinus strobus—Liriodendron tulipifera***

**Eastern White Pine—Yellowpoplar**

S100. B7a. (128) 1922, set 64 of each species on 6' x 6' spacing, pine 2-2 and Yellowpoplar 1-0 planting stock.

Plantation Age	DBH		Height		No. of Trees		Year
	WP	YP	WP	YP	WP	YP	
11	2"	1"	15'	11'	47	44	1932
15	4"	2"	22'	18'	47	39	1936
21					29	33	1942
21	6"	4"	32'	31'	29	33	1943
45					16	23	1967
50					9	9	1971
54	12"	13"	67'	61'	9	9	1975

Thinned 1942, 1971. White Pine in much better condition than Yellowpoplar. Many Yellowpoplars have defective butts from "lawn mower disease." All Yellowpoplar removed in 1971 had decay in base of trees. Ground cover is mowed grass.

Status: White Pine: (+) 1975.

Yellowpoplar: (—) 1975.

***Pinus strobus—Machura pomifera***

**Eastern White Pine—Osageorange**

S99. B7f. (128) 1922, 64 of each species set 6' x 6';

White Pine 2-2, Osageorange 1-0 planting stock.

Plantation Age	DBH		Height		No. of Trees		Year
	WP	O	WP	O	WP	O	
11	2"	1"	13'	13'	49	64	1932
15	3"	2"	20'	18'	48	64	1936
21					23	48	1942
21	6"	3"	34'	27'	23	48	1943
43					6	0	1965
54	13"		72'		6		1975

Thinned 1942. 1965 removed all except six trees to make room for holding nursery.

Status: White Pine: (+) 1975.

Osageorange: Re 1965.

***Pinus strobus—Quercus rubra* L.**

**Eastern White Pine—Northern Red Oak**

S100. B7h. (122) 1922, 64 of each species set 6' x 6';

White Pine 2-2, Northern Red Oak 2-0 planting stock.

Plantation Age	DBH		Height		No. of Trees		Year
	WP	RO	WP	RO	WP	RO	
11	2"	3"	14'	19'	53	64	1932
15	3"	4"	22'	28'	38	64	1936
21					22	54	1942
21	4"	5"	28'	38'	22	54	1943
46					0	2	1966
54		12"		76'		2	1975

Thinned 1942. 1966 removed all except two trees to make room for holding nursery.

Status: Red Oak: (+) 1975.

White Pine: Re 1966.

***Pinus strobus***

**Eastern White Pine**

S97. A5. 1930. Direct seeding. Thinned 1949. In open areas of Northern Red Oak. 1975 dense undergrowth of Black Cherry, Blackberry, Elderberry, Black Raspberry, Japanese Honeysuckle, Euonymus. White Pine 16" av. DBH; 72' av. h. Status: (+) 13"-20" DBH; 65'-78' h. (14) 1975.

S100. O. (2) 1935. Set in Norway Spruce windbreak. Overgrown by Spruce. Lower branches pruned off.

Status: (—) 6" DBH; 25' h. (2) 1975.

***Pinus strobus*—*Castanea mollissima*,**

Hawk Selection

**Eastern White Pine—Hawk Sel. Chinese Chestnut**

S100. D11. (144) 1954, 72 of each species set 8' x 8' spacing, Pine 18" h., Chestnut 36" h.

Plantation Age	DBH		Height		No. of Trees		Year
	WP	CC	WP	CC	WP	CC	
18	2"	5"	15'	42'	50	64	1971
19					25	41	1972
22	3"	6"	19'	49'	25	41	1975

Improvement cutting 1972. All Pines have been suppressed by Chestnuts. 33% of Chestnuts had stem cankers of Chestnut Blight (*Endothia parasitica*). Most of these trees were removed in 1972 improvement cutting. Pines badly damaged by woodchucks.

Status: White Pine: (—) 1975.

Chestnut: (+) 1975.

***Pinus strobus***

**Eastern White Pine**

S100. O. (2) 1956. 9", 14" DBH when destroyed by tornado 1972.

Status: Fw 1972.

S100. O. (1) 1956.

Status: NP 1968.

S133. C4. (1) 1956. Removed prior to 1968.

Status: NP 1968.

S100. C4. (2) 1958. (1) 1970. Ground cover is mowed grass.

Status: (+ +) 10" DBH; 38' h. (1) 1975.

S97. J40. (128) 1961 grafted, container-grown plants 4 yrs. old. Set two rows in windbreak. Replaced gaps with other conifers in 1970. Three Scots Pine and two Austrian Pine in original planting.

Plantation Age	DBH	Height	No. of Trees	Year
15	5"	27'	103	1975

Scots Pine infested with Pitch Mass Borer (*Parharmonia pini*).

Status: White Pine: (+ +) 2"-9" DBH; 14'-31' h. (103) 1975.

Austrian Pine: (—) 3" DBH; 18' h. (2) 1975.

Scots Pine: (—) 7" DBH; 25' h. (3) 1975.

S109a. JQIV. (4) 1966. Site wet. Ground cover tall grass. (1) Fa 1970, girdled by mice.

Status: (+) 14'-16' h. (3) 1975.

S97. JQIV. (12) 1967. Ground cover tall grass. (9) Fa 1970, girdled by mice.

Status: (+ +) 10'-12' h. (3) 1975.

S97. J39. (48) 1967, 12" h. Single row set 12' apart in windbreak on lawn. (35) Fm 1973. (13) 1975, 2" av. DBH; 10' av. h.

Status: (+ +) 1"-3" DBH; 6'-14' h. (13) 1975.

***Pinus strobus*—*Pinus strobiformis***

**Eastern White Pine—Border White Pine**

S97. G18. (41) 1967. See *Pinus strobiformis*—*Pinus strobus* for data.

***Pinus strobus***

**Eastern White Pine**

S100. A47. (4) 1971, 4' h. Ts with tree spade from nursery into windbreak with mixed conifers. Staggered single row.

Status: (+) 9'-11' h. (4) 1975.

S100. T. (5) 1971, 4' h. Ts with tree spade from nursery into windbreak with mixed conifers.

Status: (+) 8'-11' h. (5) 1975.

S100. J39. (23) 1972, 18" h. Single row set 12' apart in windbreak on lawn. Replacements. (11) Fm 1973.

Status: (+ +) 4' av. h. (12) 1975.

S100. J39. (12) 1973, 24" h. Single row set 12' apart in windbreak on lawn. Replacements. (1) Fp 1973.

Status: (+ +) 4' av. h. (11) 1975.

***Pinus strobus*, G1461**

**Eastern White Pine**

S97. J39. (6) 1967, 12" h. Set 12' apart in single line windbreak on lawn. (5) Fm 1968-1973. Remaining tree is quite crooked.

Status: (—) 1" DBH; 7' h. (1) 1975.

***Pinus strobus*, G1462**

**Eastern White Pine**

S97. J39. (2) 1967, 12" h. Set 12' apart in single line windbreak on lawn.

Status: Fm 1973.

***Pinus strobus*, G1590**

**Eastern White Pine**

S97. J39. (13) 1967, 12" h. Set 12' apart in single line windbreak on lawn. (9) Fm 1968-1973. Remaining trees quite crooked.

Status: (—) 2" DBH; 8'-10' h. (4) 1975.

***Pinus strobus* 'Fastigiata'**

**Pyramidal Eastern White Pine**

S10. G19. (5) 1972, 2' h.

Status: (+) 4'-5' h. (5) 1975.

***Pinus strobus* 'Pendula'**

**Weeping Eastern White Pine**

S10. G19. (6) 1972, 1'-2' h.

Status: (+) 18"-50" (6) 1975.

***Pinus strobus* 'Pumila'**

Suk. C4. (1) 1956. Failed severe winter and winds 1962-63.

Status: Fw 1963.

***Pinus strobus* 'Umbraculifera'**

**Umbrella Eastern White Pine**

S133. C4. (1) 1958. 1963 —20° F., severe winter with high winds.

Status: Fw 1963.

***Pinus sylvestris* L.**

**Scots Pine**

S53. O. 1912. Windbreak planting with other pines. Status: (+) 10"-23" DBH; 39'-51' h. (5) 1975.

S53. J10. (171) 1912, 2-2 planting stock set 4' x 4'. Originally mixed with Norway Spruce. See *Picea abies*—*Pinus sylvestris* for data on Spruce.

Plantation Age	DBH	Height	No. of Trees	Year
13	3"	24'	116	1925
18			95	1930
20	5"	37'	74	1933
24	6"	40'	74	1936
56			72	1968
56			48	1968
64	14"	72'	33	1975

Thinned 1930. 1968 removed 24 trees to develop azalea garden. Two to three pines died each year from 1968 to 1975 due to change in site from forest plantation to azalea garden and from heavy trampling from public when azaleas are in bloom. Grass and azalea beds established in 1970.

Status: (+) 9"-21" DBH; 65'-75' h. (33) 1975.

White Pine: (+ +) 19" DBH; 65' h. (1) 1975.

S53. C4. (6) 1912, 2-2 planting stock. (2) 1933. Ground cover is mowed grass.

Status: (+) 13", 15" DBH; 38', 55' h. (2) 1975.

S53. O. (1) 1912, 2-2 planting stock. Flat-topped crown.

Status: (+) 14" DBH; 34' h. (1) 1975.

V. A7. 1914. Natural seeded. Became established in open areas of Northern Red Oak planting. 1975 dense undergrowth of Blackberry, Black Locust, Black Cherry, Multiflora Rose, Privet, Scots Pine. 14" av. DBH; 75' av. h.

Status: (+) 9"-19" DBH; 70'-84' h. (28) 1975.

S53. J11. (60) 1914, 2-2 planting stock set 4' x 4'.

Plantation Age	DBH	Height	No. of Trees	Year
12	3"	22'	46	1926
26	5"	44'	45	1939
26			33	1940
37			4	1951

Thinned 1940. Severe winds in 1951 destroyed planting.

Status: Fw 1951.

S53. G5a. (900) 1914, 2-3 planting stock set 3' x 3'.

Plantation Age	DBH	Height	No. of Trees	Year
10	2"	17'	776	1923
10			625	1923
13	3"	25'	499	1926
13			361	1926
18	4"	33'	301	1931
18			268	1932
23	5"	41'	208	1936

Thinned 1923, 1926, 1932, 1952. Removed 187.32 cu. ft. 1952.

Status: Combined into Plot G5 after 1952.

S53. G5b. (450) 1914, 2-3 planting stock set 3' x 6'.

Plantation Age	DBH	Height	No. of Trees	Year
9	3"	16'	394	1923
14	4"	25'	279	1927
18	5"	33'	203	1931
23	6"	41'	151	1936

Thinned 1952. Removed 187.55 cu. ft.

Status: Combined into Plot G5 after 1952.

S53. G5c. (225) 1914, 2-3 planting stock set 6' x 6'.

Plantation Age	DBH	Height	No. of Trees	Year
10	4"	21'	202	1923
14	4"	25'	195	1927
18	5"	32'	158	1931
23	6"	40'	120	1936

Thinned 1952. Removed 187.35 cu. ft.

Status: Combined into Plot G5 after 1952.

S53. G5. (1575) 1914, 2-3 planting stock. Plots a, b, c combined. Some tops have been broken out by snow or wind.

Plantation Age	DBH	Height	No. of Trees	Year
10	3"	18'	1372	1923
14	4"	25'	973	1927
18	5"	33'	662	1931
23	6"	41'	479	1936
43	11"	69'		1956
62	13"	81'	86	1975

Thinned 1923, 1926, 1932, 1952. Removed 562.22 cu. ft. in 1952 thinning. Dec. 1974 (1) Fw, 22" snowfall broke crown out of tree. Undergrowth mostly Blackberry, Black Cherry, Elderberry, Pokeberry, Multiflora Rose, and occasional Black Locust, Tatarian Honeysuckle, Crabapple, and River Birch.

Status: (—) 9"-19" DBH; 66'-90' h. (86) 1975.



*Pinus sylvestris*—*Pinus banksiana*

Scots Pine—Jack Pine

S53. G10. (8) 1914. See *Pinus banksiana*—*Pinus sylvestris* for data.

*Pinus sylvestris*

Scots Pine

S53. F1. 1914, 2-0 planting stock. (11) 1930. Removed to make room for Flowering Crabapples. Status: Re 1951.

*Pinus sylvestris*—*Pinus mugo*

Scots Pine—Swiss Mountain Pine

S53. J38. (72) 1915, 36 each species, 2-3 planting stock set 4' x 4'. (9) Swiss Mountain Pine, (22) Scots Pine 1929. Status: Re 1950.

S53. J28. (84) 1915, 42 each species, 2-3 planting stock set 4' x 4'. (39) SP, (0) SMP, 1929. (35) SP 1930. Status: Re 1950.

S53. J39. (72) 1915, 36 each species. (22) SP, (0) SMP 1930. Status: Re 1950.

S53. K28. 1917, set 2-4 planting stock in mixture. Site wet. Status: Fs 1919.

*Pinus sylvestris*

Scots Pine

S53. O. (2) 1917. Set in windbreak with Austrian Pine and Norway Spruce. Outgrown by both. Status: (—) 9", 12" DBH; 30', 42' h. (2) 1975.

*Pinus sylvestris*—*Pinus strobus*

Scots Pine—White Pine

S53. A17. (50) 1917. See *Pinus strobus*—*Pinus sylvestris* for data.

*Pinus sylvestris*—*Pinus banksiana*

Scots Pine—Jack Pine

G10. S53. (8) 1917. See *Pinus banksiana*—*Pinus sylvestris* for data.

*Pinus sylvestris*

Scots Pine

S92. D30. (44) 1918, 2-1 planting stock set 6' x 6'. Group plantings with Austrian, White, Corsican, Ponderosa Pines. 1975 dense undergrowth of Blackberry bushes.



Scots Pine planting 55 years old.

Thinned 1930, 1938. All Pines in wet eastern section of plot have died out.

Status: (+) 9"-17" DBH; 80'-90' h. (8) 1975.

S99. A5. Direct seeding 1920 in spots in open areas in Northern Red Oak plantation. Present (1975) undergrowth dense Blackberry, Elderberry, Black Raspberry, Japanese Honeysuckle, Euonymus, Honeysuckle shrubs. Periodically mowed. Av. DBH 15"; av. h. 68'. Area had been thinned in 1949.

Status: (+) 14"-17" DBH; 65'-70' h. (6) 1975.

S100. C4. (1) 1931.

Status: (+) 13" DBH; 37' h. (1) 1975.

S99. A22. (81) 1942. Seed spots spaced 6' x 6'. (6) 1948. Crowded out by hardwood underbrush.

Status: Fs prior to 1960.

*Pinus sylvestris*—*Pinus resinosa*

Scots Pine—Red Pine

S100. L10. (300) 1949. See *Pinus resinosa*—*Pinus sylvestris* for data.

*Pinus sylvestris*—*Castanea mollissima* 'Nanking'

Scots Pine—Nanking Chinese Chestnut

S100. B4. (16) 1950, Pine 2-2-2 planting stock set

Plantation Age	DBH	Height	No. of Trees	Year
10	4"	20'	44	1927
13			43	1930
19	6"	36'	41	1936
20			27	1938
25	8"	45'	27	1943
58	13"	86'	8	1975

5' x 5'. (16) Chestnut 1951. Pines cut for Christmas trees.

Status: Chestnut: Re 1953.

Pine: Re 1955.

### *Pinus sylvestris*

#### Scots Pine

S100. C4. (1) 1956, 2-5 planting stock.

Status: Fd 1972.

S99. A22. (15) 1963, set 8' x 10'. Site too shady, small plot completely shaded from all directions from adjacent larger trees. Dense undergrowth of Blackberries.

Status: Fs prior 1968.

S97. O. (3) 1967, 7' h.

Status: (+ +) 3"-4" DBH; 11'-13' h. (3) 1975.

S97. JQIV. (9) 1967, 3' h. (8) 1968, (1) Fa, girdled by mice. (8) Fa 1970, girdled by mice.

Status: Fa 1970.

S97. JQV. (3) 1967, 3' h. Underplanted under White Birch. Trees spindly.

Status: (—) 12' h. (3) 1975.

S97. JQVI. (3) 1967, 3' h. Underplanted. Trees spindly.

Status: (—) 8' h. (3) 1975.

S99. H. (10) 1970, 6' h. Original 12 trees set 1967.

Ts in windbreak with tree spade. Tops of three trees broken out by snow 1974. Tips of needles showing herbicide damage from Casoron applied winter 1974-75. 4" av. DBH; 12' av. h.

Status: (+) 2"-6" DBH; 10'-18' h. (22) 1975.

S76. O. (3) 1972, 7' h. B&B.

Status: (+) 3" av. DBH; 11' h. (3) 1975.

### *Pinus sylvestris*, Blue Selection

#### Blue Selection Scots Pine

S102. C4. (1) 1928.

Status: NP 1968.

### *Pinus sylvestris*, Booneville Selection

#### Booneville Selection Scots Pine

Suk. B4. (80) 1956. Ts Southeastern Test Farm.

Status: Re 1958.

### *Pinus sylvestris* 'Fastigiata'

#### Pyramidal Scots Pine

S10. C4. (4) 1971, 24" container grown.

Status: (+ +) 3'-5' h. (4) 1975.

### *Pinus sylvestris*, Finland

#### Scots Pine—Seed from Finland

S90. M2. (6) 1934, 2-1-2 planting stock. Underplanted in hardwoods.

Status: Fs 1947.

### *Pinus sylvestris*, French selection

#### Scots Pine, French Nursery Selection

S42. A34. (28) 1960, 2-4 planting stock. See *Pinus nigra* var. *poiretiana*—*Pinus sylvestris* for data.

### *Pinus sylvestris*, German selection

#### Scots Pine, German Selection

S89. A25. (81) 1931, 2-2 planting stock set 6' x 6'.

1975, straight stemmed trees. Dense undergrowth of Devils-Walkingstick, Blackberry, Elderberry, Red Maple. Periodically mowed.

Plantation Age	DBH	Height	No. of Trees	Year
8	3"	17'	78	1938
18	6"	43'		1948
26	9"	56'		1956
45	14"	82'	13	1975

(17) Fw 1963 windthrow. (1) Fw 1974, top broken out by 22" snowfall, remaining trees not damaged. The best stand of Scots Pine in Arboretum.

Status: (+ +) 9"-17" DBH; 80'-84' h. (13) 1975.

### *Pinus sylvestris* f. *hamata* Stev.

S131. H11. (6) 1930. (3) Re 1947. (2) Re 1958.

Status: Fd 1968.

### *Pinus sylvestris*, King Selection

#### King Selection Scots Pine

S87. L12. (20) 1964, set 5' x 8' spacing.

Status: Re prior to 1968.

S87. L13. (20) 1964, set 5' x 8' spacing.

Status: Re prior to 1968.

### *Pinus sylvestris* var. *lapponica* Hartm.

#### Lapland Scots Pine

S39. A24. (81) 1931, 2-2 planting stock set 6' x 6'.

1975 straight stems. Dense undergrowth Devils-Walkingstick, Blackberry, Elderberry. Periodically mowed.

Plantation Age	DBH	Height	No. of Trees	Year
8	2"	10'	81	1938
18	4"	27'		1948
26	6"	37'		1957
45	9"	70'	10	1975

Status: (+) 4"-13" DBH; 67'-72' h. (10) 1975.

### *Pinus sylvestris*, Nye Branch Selection

#### Nye Branch Selection Scots Pine

S94. A9. (48) 1956, windbreak planting. (1) Fd 1968. (1) Fd 1973. (1) Fw 1974. (3) Fw 1975.

Severe infection Needlecast (*Lophodermium pinastri*). Heavy 22" snowfall December 1974 broke two trees so badly they had to be removed. Severe

breakage in four additional trees. Scots Pine av. 7" DBH, 25' h.

Status: Scots Pine: (+) 5"-9" DBH; 12'-34' h. (41) 1975.

White Pine: (+) 9"-11" DBH; 30'-34' h. (3) 1975.

S94. B4. (80) 1956. Ts 1958 to Southeastern Test Farm.

Status: Ts 1958.

*Pinus sylvestris* var. *rigensis* Loud.

#### Riga Scots Pine

S99. E49. (28) 1927, 2-1 planting stock. 1975 moderate undergrowth of Multiflora Rose, Sugar Maple, Tatarian Honeysuckle, and Devils-Walkingstick.

Plantation Age	DBH	Height	No. of Trees	Year
5	2"	9'	28	1931
13	5"	31'		1939
49	12"	85'	6	1975

One tree windthrown 1973 had root system and base of tree decayed with brown root rot.

Status: (—) 5"-15" DBH; 70'-93' h. (6) 1975.

S46. A23. (90) 1933, 3-3 planting stock set 6' x 6'. 22" snowfall Dec. 1974 broke tops out of five trees. This stand badly damaged by heavy snowfall.

Plantation Age	DBH	Height	No. of Trees	Year
6	2"	13'	81	1939
16	6"	41'		1949
24	8"	55'		1957
43	11"	69'	16	1975

Status: (+) 9"-16" DBH; 65'-75' h. (16) 1975.

S85. B4. (80) 1956. Ts Southeastern Test Farm 1958.

Status: Ts 1958.

*Pinus sylvestris* var. *rigensis*—

#### *Pinus nigra* var. *maritima*

S116. A34. (14) 1960. See *Pinus nigra* var. *maritima*—*Pinus sylvestris* var. *rigensis* for data.

*Pinus sylvestris*, Spanish A

#### Spanish A Selection Scots Pine

Suk. G21. (16) 1958, spaced 10' x 10'. Needlecast severe. (2) Fd 1972. Shady site.

Plantation Age	DBH	Height	No. of Trees	Year
17	6"	23'	12	1975

Status: (—) 3"-8" DBH; 16'-25' h. (12) 1975.

*Pinus sylvestris*, Spanish B

#### Spanish B Selection Scots Pine

Suk. G22. (16) 1958, spaced 10' x 10'. Needlecast

severe. Shady site from adjacent taller trees.

Plantation Age	DBH	Height	No. of Trees	Year
17	6"	25'	14	1975

Status: (—) 4"-8" DBH; 11'-27' h. (14) 1975.

*Pinus sylvestris*, Swedish selection

#### Swedish Selection Scots Pine

S90. M2. (9) 1934, 2-1-2 planting stock. Underplanted in open hardwood stand.

Status: Fs 1947.

*Pinus sylvestris*, 'Watereri'

#### Waterer Scots Pine

S133. C4. (2) 1964. (1) 1968.

Status: (+ +) 9' h. (1) 1975.

S10. C4. (5) 1971, 24" h. (1) Fm 1975.

Status: (+ +) 30" h. (4) 1975.

Suk: O. (1) 1970, 40" h.

Status: (+ +) 46" h. (1) 1975.

*Pinus tabulaeformis* Carr.

#### Chinese Pine

S70. C1. (1) 1935, 2-5 planting stock. Exposed site. Base of trunk decaying. Crown badly damaged by 22" snowfall Dec. 1974.

Status: (—) 16" DBH; 31' h. (1) 1975.

*Pinus tabulaeformis* var. *densata* (Mast.) Rehd.

#### Compact Chinese Pine

S70. A29. (20) 1931, 2-2 planting stock. (1) 1948.

Ground cover is mowed grass.

Status: (+ +) 15" DBH; 50' h. (1) 1975.

*Pinus taeda* L.

#### Loblolly Pine

S9. G13. (30) 1915, 2-6 planting stock set 6' x 6'. (2) Fc 1958, severe winter 1958-59.

Plantation Age	DBH	Height	No. of Trees	Year
11	4"	19'	14	1925
17	5"	28'	12	1931
22	6"	37'	7	1936
61	12"	72'	3	1975

Status: (+) 9"-15" DBH; 69'-73' h. (3) 1975.

S9. G15. (30) 1917, 2-1 planting stock set 6' x 6'.

Plantation Age	DBH	Height	No. of Trees	Year
9	3"	19'	28	1925
15	4"	28'	28	1931
20	5"	37'	24	1936
22			21	1938
40	9"	54'		1956
59	11"	73'	6	1975

Thinned 1938. (14) Fc severe winter 1958-59. Largest tree is 13" DBH.

Status: (+) 1975.

S140. G20. (16) 1958, 2-0 planting stock set 10' x 10'.  
Replanted (14) 1960. Site shady from adjacent older plantings.

Plantation Age	DBH	Height	No. of Trees	Year
16	4"	23'	10	1975

Trees badly bent from 22" snowfall Dec. 1974.  
Largest tree is 7" DBH, 27' h.  
Status: (—) 1975.

***Pinus thunbergii* Parl.**  
**Japanese Black Pine**

S1. C4. (20) 1907, 2-0 planting stock. Thinned 1922. (2) 1957. (1) 1958, (1) Re.  
Status: (+) 10" DBH; 40' h. (1) 1975.

S2. G17. (30) 1914, 2-2 planting stock set 6' x 6'.

Plantation Age	DBH	Height	No. of Trees	Year
11	3"	15'	29	1925
16			22	1930
21	4"	27'	21	1936
62	12"	60'	1	1975

Status: (+) 1975.

S2. F1. (13) 1915, 2-2 planting stock. (13) 1930.  
Removed 1951 to make room for Flowering Crab-apple plot.  
Status: Re 1951.



**Goldenlarch planted in 1909. Largest tree was 20 inches in diameter and 90 feet tall before tornado broke out top of tree in 1972. This is a little known immigrant from China.**

S127. C4. (1) 1958. Exposed site.

Status: Fs 1959.

S70a. O. (6) 1973, B&B 4' h. Lawn planting.

Status: (+ +) 6' h. (6) 1975.

S70a. O. (1) 1973, B&B 4' h. Lawn planting.

Status: (+ +) 6' h. (1) 1975.

S70a. J39. (15) 1973, B&B 4' h. (5) Fp 1974.

Windbreak planting in lawn.

Status: (+) 4'-7' h. (10) 1975.

***Pinus torreyana* Parry ex Carr.**

**Torrey Pine**

Suk. H. 1932.

Status: Fs 1933.

***Pinus virginiana* Mill.**

**Virginia Pine**

S99. A29. (36) 1926, 2-2 planting stock. (34) 1930.

Status: Re 1952.

S100. C4. (2) 1959.

Status: (+ +) 8" DBH; 26' h. (2) 1975.

***Pinus yunnanensis* Franch.**

**Yunnan Pine**

Suk. H. 1932.

Status: Fs 1933.

***Pseudolarix kaempferi* (Ldl.) Gord. (*ambilis*)**

**Goldenlarch, Chinese Goldenlarch**

S9. J7. (2) 1909. Wet site along wet weather creek.

Top of largest tree broken out by tornado 1972.

Status: (+ +) 16", 20" DBH; 84', 36' h. (2) 1975.

S99. J7. (4) 1973, 3'-5' h. Grown in nursery 6 years.

Status: (+) 1" DBH; 9' h. (4) 1975.

***Pseudotsuga menziesii* (Mirb.) Franco**

**Douglasfir**

S49. F24. (300) 1914, 2-2 planting stock set 6' x 6'.

Underplanted with Tatarian Honeysuckle and Barberry.

Plantation Age	DBH	Height	No. of Trees	Year
13	2"	13'	275	1926
18	4"	23'	275	1931
23	4"	28'	255	1936
25			239	1938
27			232	1940

Thinned 1938, 1940. Windthrow and snow damage 1944. Clearcut 1945.

Status: Fw 1945.

S49. O. (3) 1914, 2-2 planting stock. (3) 1970 Fw.

Windthrown, tornado.

Status: Fw 1970.

S49. C4a. (56) 1915, 2-2 planting stock set 6' x 6'.

Exposed site.

Plantation Age	DBH	Height	No. of Trees	Year
11	2"	13'	50	1925
17	4"	21'	49	1932
22	5"	27'	47	1936
27			43	1941
28	6"	34'	38	1943
39	7"	47'		1954

Thinned 1941. Windthrown 1955.

Status: Fw 1955.

S49. C4b. (56) 1915, 2-2 planting stock set 6' x 6'.  
Exposed site.

Plantation Age	DBH	Height	No. of Trees	Year
11	1"	11'	39	1925
17	3"	18'	38	1932
22	3"	24'	36	1936
27			32	1941
28	4"	30'	21	1943

Thinned 1941. Windthrown 1955.

Status: Fw 1955.

S53. C4d. (56) 1915, 2-2 planting stock set 6' x 6'.  
Exposed site.

Plantation Age	DBH	Height	No. of Trees	Year
9	2"	15'	46	1925
15	4"	24'	41	1932
20	5"	30'	39	1936
26	6"	36'	26	1942

Removed (2) in thinning 1941. Windthrown 1955.

Status: Fw 1955.

S49. F4. (49) 1915, 2-2-2 planting stock set 6' x 6'.

Plantation Age	DBH	Height	No. of Trees	Year
11	2"	11'	47	1925
17	4"	20'	47	1931
21	4"	24'	45	1936
29	5"	36'	23	1944
33			7	1948

1948 blowdown. 1950 clearcut.

Status: Fw 1950.

### *Pseudotsuga menziesii*—*Abies fraseri*

#### Douglasfir—Fraser Fir

S99. A28 (45) 1920. See *Abies fraseri*—*Pseudotsuga menziesii* for data.

### *Pseudotsuga menziesii*

#### Douglasfir

S49. A18. (95) 1921, 2-3 planting stock. Grade B thinning 1940. (3) Fw 1974, 22" snowfall.

Plantation Age	DBH	Height	No. of Trees	Year
55	10"	77'	11	1975

Plot has been affected by adjacent oak plantings.

Status: (+) 6"-15" DBH; 61'-81' h. (11) 1975.

S34. O. (2) 1956. (1) Fw 1970, blown over by windstorm. Lawn tree.

Status: (+) 9" DBH; 33' h. (1) 1975.

S32. J27. (16) 1960, 2-5 planting stock set 10' x 10'.  
1974 (2) bent over by 22" snowfall.

Plantation Age	DBH	Height	No. of Trees	Year
16	4"	23'	16	1975

Status: (+ +) 2"-6" DBH; 18'-28' h. (16) 1975.

### *Pseudotsuga menziesii* var. *glauca* (Beissn.) Franco —*Acer saccharum* Marsh.

#### Blue Douglasfir—Sugar Maple

S53. D6. (119) 1909, 2-2 planting stock set 6' x 6'.  
(121) 1913, 2-2 planting stock to replace maple which failed. 1969 underplant holly on 12' x 12' spacing. 1975 ground cover is mowed grass.

Plantation Age		DBH		Height		No. of Trees		Year
1st	2nd	1st	2nd	1st	2nd	1st	2nd	
17	13	3"		17'		112		1925
24	20	5"	3"	32'	26'	107	65	1932
27	23					95	29	1935
28	24	6"	4"	38'	31'	95	29	1936
35	31	7"	5"	43'	36'	76	17	1944
48	44	9"		58'				1957
58						20		1967
67		11"		56'		18		1975

Second planting failed due to suppression. Thinned 1935 removed (48), 1938 removed (9), 1969 removed (9) suppressed trees. 1970 removed (2) trees with tops broken by wind. Tops broken out by wind or snow.

Status: (—) 6"-14" DBH; 24'-66' h. (18) 1975.

S53. C4c. (56) 1917, 2-2 planting stock set 6' x 6'.  
Exposed site.

Plantation Age	DBH	Height	No. of Trees	Year
9	2"	15'	45	1925
15	4"	26'	42	1932
20	5"	31'	39	1936
26	7"	42'	25	1943

Thinned 1938 removed (2), 1941 removed (6).  
1955 windthrown.

Status: Fw 1955.

### *Pseudotsuga menziesii* var. *glauca*—*Picea abies*

#### Blue Douglasfir—Norway Spruce

S53. E54. (35) 1919, 2-2 planting stock set 6' x 6'.  
See *Picea abies*—*Pseudotsuga menziesii* var. *glauca* for data.





**Blue Douglasfir.** Remains of forest plantation out-planted in 1909.

*Pseudotsuga menziesii* var. *glauca*—*Pinus resinosa*  
Blue Douglasfir—Red Pine

S53. A19. (45) 1919. See *Pinus resinosa*—*Pseudotsuga menziesii* var. *glauca* for data.

*Pseudotsuga menziesii* var. *glauca*—*Pinus strobus*  
Blue Douglasfir—White Pine

S53. E50. (45) 1919. See *Pinus strobus*—*Pseudotsuga menziesii* var. *glauca* for data.

*Pseudotsuga menziesii* var. *glauca*

Blue Douglasfir

S53. K28. (50) 1919, 2-2 planting stock underplanted in open hardwood stand. (40) 1930.

Status: Fw, Fs 1962.

S102. C3. (1) 1933, grafted plant.

Status: Re 1955.

*Tsuga canadensis* (L.) Carr.

Eastern Hemlock, Canada Hemlock

S112. J3. (243) 1914, 2-4 planting stock set 5' x 6'. Set in sod on steep hillside. Planted under scattered hardwoods. (151) 1929.

Plantation Age	DBH	Height	No. of Trees	Year
62	11"	66'	35	1975

Cull White Oak remains of hardwood stand overlapping hemlock, 25" DBH, 75' h.

Status: (+) 5"-16" DBH; 60'-68' h. (35) 1975.

S40. J9. (230) 1914, 2-4 planting stock. 1967 Re for Rhododendron Display Garden.

Status: (++) 8"-15" DBH; 35'-55' h. (3) 1975.

S40. J34. (253) 1914, collected seedlings 12" h., set 3' x 3'. Site steep dry slope, hardwood competition. (133) 1930.

Plantation Age	DBH	Height	No. of Trees	Year
62	8"	45'	14	1975

Status: (++) 6"-13" DBH; 34'-54' h. (14) 1975.

S40. J45. (500) 1914, 5-7-yr. collected seedlings, 8"-18" h., set 6' x 6' in sod. (447) 1930. Severe snow damage from 22" snowfall Dec. 1974 destroyed 18 trees. Present undergrowth consists of scattered Black Cherry, Multiflora Rose, Chokecherry, Poison Ivy, Roundleaf Dogwood, Barberry, and Privet.

Plantation Age	DBH	Height	No. of Trees	Year
62	10"	69'	63	1975

Status: Hemlock: (+) 4"-16" DBH; 35'-72' h. (63) 1975.

Yellowpoplar: (++) 4"-6" DBH; 35'-48' h. (6) 1975.

Northern Red Oak: (+) 15" DBH; 75' h. (1) 1975.

Shingle Oak: (+) 18" DBH; 75' h. (1) 1975.

Black Oak: (+) 23" DBH; 80' h. (1) 1975.

*Tsuga canadensis*—*Tilia americana* L.

Canada Hemlock—American Basswood

S53. K4. *Tilia* (250) 1914, 2-2 planting stock set 6' x 6', 4' h. *Tsuga* (110) 1919, 2-8 planting stock, 1½'-2' h., underplanted under *Tilia*. Area pastured until 1911. Planted under scattered hardwoods. Moist north slope, drainage good.

Plantation Age		DBH		Height		No. of Trees		Year
AB	CH	AB	CH	AB	CH	AB	CH	
14	9					136	107	1928
60	55					18	46	1974
61	56	9"	7"	78'	55'	16	44	1975

1975 (2) Basswood, (2) Hemlock destroyed by windthrown tree. Hemlock and Yews seeding in. Status: Hemlock: (+) 3"-15" DBH; 25'-75' h. (44) 1975.

Basswood: (+) 7"-16" DBH; 71'-83' h. (16) 1975.  
 Northern Red Oak: (+) 19"-32" DBH; 90'-96' h. (3) 1975.  
 Sugar Maple: (+) 14" DBH; 75' h. (1) 1975.

### *Tsuga canadensis*

#### Canada Hemlock

S40. O. (2) 1914, 2-4 planting stock. 1922 Re construction changes.

Status: Re 1922.

S40. K10. (150) 1915, 6-8-yr. collected seedlings, 12"-20" h. Site on cliff breaking away to creek. (118) 1930. (3) 10"-12" DBH blown down by tornado July 9, 1972. Cull white oak overtopping stand 20" DBH; 80' h. (1) 1975.

Plantation Age	DBH	Height	No. of Trees	Year
60	8"	64'	38	1975

Young hemlocks seeding in.

Status: (+) 4"-14" DBH; 35'-70' h. (38) 1975.

S40. K28. (90) 1915, 6-yr. collected seedlings. Site steep hillside, 36% slope west to creek. 1975 some trees have tipped over from erosion.

Plantation Age	DBH	Height	No. of Trees	Year
16			84	1930
60	7"	57'	25	1975

Status: (+) 2"-14" DBH; 10'-81' h. (25) 1975.

S40. A9. (50) 1916. (49) 1930. Re 1951 for Flowering Crabapple planting.

Status: Re 1951.

S53. J3a. (45) 1919, 2-5 planting stock, 2' h. Site on creek bank under scattered hardwoods. (2) Fw 1974, tipped over by 22" snowfall.

Plantation Age	DBH	Height	No. of Trees	Year
12			31	1930
55			23	1974
56	11"	66'	21	1975

Status: (+ +) 5"-17" DBH; 60'-70' h. (21) 1975.

S112. A1. (4) 1919, 2-2-8 planting stock. Underplanted in Catalpa plantation. (1) 1957.

Status: Fs 1958.

S112. E46. (35) 1919, 11-year-old collected seedlings 5' h. 1975 ground cover is duff from fallen needles.

Plantation Age	DBH	Height	No. of Trees	Year
7	1"	10'	69	1925
13	3"	19'	65	1931
17	4"	24'	50	1936
25	5"	34'	38	1944
57	11"	69'	11	1975



Canada Hemlock

Status: (+) 8"-15" DBH; 67'-71' h. (11) 1975.

### *Tsuga canadensis*—*Prunus serotina* Ehrh.

#### Canada Hemlock—Black Cherry

S53. E7. (64) 1919, 2-5 planting stock underplant.

Cherry (85) 1916, 2-1 planting stock. Site wet in Spring.

Plantation Age		DBH		Height		No. of Trees		Year
CH	BC	CH	BC	CH	BC	CH	BC	
	12		2"		15'		85	1927
13	16	1"	3"	13'	21'	49	84	1931
19	22	2"	4"	15'	31'	48	84	1938
19	22					48	61	1938
24	27	2"	5"	17'	39'	47	61	1943
56	59	5"	10"	30'	72'	11	47	1975

1970 removed 12 Black Cherry cutting suppressed very crooked trees. Majority of cherry very poor form and crooked. Hemlock in very poor condition. Snow breakage in three from 22" snowfall Dec. 1974. Scattered undergrowth of Tatarian Honeysuckle, Elderberry, Norway Maple, and Privet.

Status: Hemlock: (—) 4"-8" DBH; 15'-45' h. (11) 1975.

Black Cherry: (—) 6"-16" DBH; 45'-76' h. (47) 1975.

*Tsuga canadensis***Canada Hemlock**

S53. F2. (8) 1919, 2-3 planting stock. One Black Locust naturally seeded.

Status: Hemlock: (+ +) 12" av. DBH; 49' av. h. (5) 1975.

Black Locust: (+ +) 11" DBH; 58' h. (1) 1975.

S99. O. (7) 1922. Screen planting.

Status: (+) 9"-15" DBH; 35'-58' h. (7) 1975.

S99. J37. (3) 1925. Underplant under hardwoods. 1975 tops damaged by overhanging oak branches.

Status: (+ +) 8"-16" DBH; 36' h. (3) 1975.

S99. O. (58) 1927. Windbreak screen.

Status: (+) 3"-6" DBH; 21'-45' h. (50) 1975.

S99. O. (19) 1927. Windbreak planting.

Status: (+) 6"-8" DBH; 50' h. (12) 1975.

S99. O. (1) 1927.

Status: (+ +) 9" DBH; 38' h. (1) 1975.

S99. O. (1) 1927.

Status: (+ +) 8" DBH; 38' h. (1) 1975.

S92. J30. (75) 1928, 2-2 planting stock. 1975, ground cover duff from fallen needles.

Plantation Age	DBH	Height	No. of Trees	Year
48	11"	50	31	1975

Two gullies through center of plot from road water runoff. 22" snowfall Dec. 1974 bent six trees and broke one off.

Status: Hemlock: (+ +) 3"-18" DBH; 30'-54' h. (31) 1975.

White Pine: (+) 4", 5" DBH; 14', 18' h. (2) 1975.

Black Cherry: (+) 5" DBH; 35' h. (1) 1975.

*Tsuga canadensis*—*Fraxinus americana* L.**Canada Hemlock—White Ash**

S99. D12. (50) 1929, 2-0 planting stock. Replant 40, 4-0 planting stock in 1931. Underplanted under White Ash (270) 1916, 1-0 planting stock set 4' x 6'. Hemlock planted in drained east edge of plot. Main plot very wet and poorly drained. Less than 13% of total height of Ash in live crown. Some hemlock broken by falling Ash.

Plantation Age		DBH		Height		No. of Trees		Year
WA	H	WA	H	WA	H	WA	H	
10		2"		16'		65		1925
16		2"		20'		65	50	1932
22	7	4"		27'		45		1938
27	12	4"		31'		44		1943
41	26	8"	3"	65'	21'			1957
60	45	13"	5"	84'	35'	95	54	1975

Status: Hemlock: (+) 2"-6" DBH; 26'-40' h. (54) 1975.

White Ash: (—) 5"-21" DBH; 75'-95' h. (95) 1975.

Pin Oak: (+) 15", 18" DBH; 80' h. (2) 1975.

*Tsuga canadensis*—*Pinus strobus***Canada Hemlock—Eastern White Pine**

S99. D13. (50) 1929, 2-0 planting stock underplanted in established White Pine stand set out in 1909. Replanted hemlock in 1931. Some hemlock present 1958, 1960, 1970.

Status: White Pine: (—) 10"-23" DBH; 50'-60' h. (17) 1975.

Hemlock: (+ +) 8" DBH; 30' h. (1) 1975.

*Tsuga canadensis*—*Carya ovata* (Mill.) K. Koch**Canada Hemlock—Shagbark Hickory**

S99. E4. (128) 1929, 2-2 planting stock underplanted in established stand of hickory. Hickory nuts planted 1916. Site wet in Spring. Moderate amount of underbrush of Tatarian Honeysuckle, Norway Maple, Privet, Multiflora Rose, Beech.

Plantation Age		DBH		Height		No. of Trees		Year
CH	SH	CH	SH	CH	SH	CH	SH	
9	22	1"	2"	9'	18'	116	76	1938
15	28	2"	2"	15'	24'	114	75	1944
28	41	4"	6"	32'	53'			1957
47	60	5"	7"	23'	84'	4	66	1975

Tops dying in hemlocks. Some butt decay in hickory.

Status: Hemlock: (—) 4"-7" DBH; 20'-30' h. (4) 1975.

Hickory: (—) 4"-12" DBH; 40'-90' h. (66) 1975.

*Tsuga canadensis*—*Pinus strobus***Canada Hemlock—Eastern White Pine**

S99. F22. (114) 1929, 2-0 planting stock underplanted in established stand of White Pine set 1914. (100) 2-1 hemlock replanted 1930. Some present 1958.

Status: Fs 1959.

*Tsuga canadensis*—*Larix gmelinii***'Principis Rupprehti'**

S99. G2. (50) 1929, 2-0 planting stock interplanted with larch. Replanted (19) 1931, 2-3 hemlock. A few hemlock present 1958.

Status: Fs 1959.

*Tsuga canadensis*—*Thuja orientalis* L.**Canada Hemlock—Oriental Arborvitae**

S99. G3. (50) 1929, 2-0 planting stock interplanted

with *Thuja*. Replanted (21) 1931, 2-3 Hemlock.  
A few Hemlock present 1958.  
Status: Fs 1959.

***Tsuga canadensis*—*Pinus strobus***

**Canada Hemlock—Eastern White Pine**

S99. G4. (100) 1929, 2-0 planting stock underplanted in established stand of White Pine which was set out in 1914. Replanted (84) 1931, 2-3 Hemlock. A few Hemlock present 1958.  
Status: Fs 1959.

***Tsuga canadensis*—*Populus canadensis regenerata***

**Canada Hemlock—Early Carolina Poplar**

S92. J26. (50) 1929, 3-0 planting stock underplanted in stand of Poplar set out in 1911. First planting of Hemlock died. Replanted (24) 1956. Poplar Fd 1950.  
Status: (+ +) 7"-10" DBH; 33'-41' h. (25) 1975.

***Tsuga canadensis*—*Liriodendron tulipifera***

**Canada Hemlock—Yellowpoplar**

S99. J38. (50) 1929, 2-1 planting stock underplanted in established stand of Yellowpoplar planted in 1911. Replanted (27) 1931, 2-3 Hemlock. Gully in center of plot from road water runoff. Baltic Ivy ground cover.

Plantation Age		DBH		Height		No. of Trees		Year
CH	YP	CH	YP	CH	YP	CH	YP	
47	65	7"	16"	38'	73'	41	13	1975

Status: Hemlock: (+) 4"-11" DBH; 30'-40' h. (41) 1975.  
Yellowpoplar: (+) 10"-20" DBH; 63'-85' h. (13) 1975.  
Ohio Buckeye: (+) 6" DBH; 34' h. (1) 1975.  
Black Cherry: (+) 4" DBH; 35' h. (1) 1975.

***Tsuga canadensis***

**Canada Hemlock**

S99. O. (211) 1932, 2-3 planting stock set 3' apart in windbreak planting along road. Alternate trees removed in 1935 leaving 6' spacing. Alternate trees removed in 1956 leaving 12' spacing. (1) Fw 1974, struck by lightning; (1) Fw 1975, struck by lightning. 1975 4" av. DBH; 48' av. h.  
Status: (+ +) 10"-17" DBH; 44'-50' h. (41) 1975.

S92. B21. (36) 1931, 2-2-5 planting stock set in wind-break screen in Spring. Replanted (12) 1931 in Fall. Replanted Spring 1932. (2) 1955.  
Status: Fs Fp 1956.

S99. E53. 1944. 1975 6" av. DBH, 33' av. h.  
Status: (+ +) 5"-9" DBH; 20'-48' h. (5) 1975.

S99. O. (2) 1950. (1) Fw 1972, tornado.  
Status: (+ +) 10" DBH; 37' h. (1) 1975.

S99. O. (2) 1950. (1) Re 1955. Re landscaping changes.

Status: Re 1967.

S99. O. (1) 1950. Construction changes.

Status: NP 1968.

S99. O. (2) 1952. Re construction changes.

Status: Re 1970.

S100. F2. (8) 1956, 2-3 planting stock, windbreak planting. 1975 av. DBH 12".

Status: (+ +) 9"-15" DBH; 49' h. (5) 1975.

S100. F1. (35) 1956, 2-3 planting stock, windbreak planting. Washing from road water runoff south end of plot. 1975 8" av. DBH, 31' av. h. Ground cover is duff from fallen needles.

Status: (+ +) 5"-10" DBH; 28'-33' h. (20) 1975.

S100. J11. (36) 1956, 2-3 planting stock, wind-break planting. 1975 7" av. DBH, 33' av. h. Ground cover is duff from fallen needles.

Status: Hemlock: (+ +) 5"-9" DBH; 30'-35' h. (36) 1975.

White Pine: (+ +) 7" DBH; 35' h. (2) 1975.

S100. J12. (25) 1956, 2-3 planting stock, wind-break planting. 1975 5" av. DBH; 33' av. h. Ground cover is duff from fallen needles.

Status: Hemlock: (+ +) 3"-7" DBH; 27'-35' h. (25) 1975.

White Pine: (+) 13" DBH; 35' h. (1) 1975.

S100. O. (3) 1956, 2-3 planting stock. Re landscaping changes.

Status: Re 1974.

S100. O. (3) 1957, 2-5 planting stock.

Status: (+) 5"-10" DBH; 52' h. (3) 1975.

S100. B5. (13) 1958. Ts (13) 1970 O.

Status: (+) 16' h. (13) 1975.

S100. B5. (12) 1958. Screen planting under edge of Yellowpoplar planting.

Status: (+) 3" av. DBH; 18' h. (12) 1975.

S88. O. (1) 1958.

Status: (+) 9" DBH; 31' h. (1) 1975.

S88. O. (8) 1958. Blown down by tornado.

Status: Fw 1970.

S59. B3. (2) 1959. Pruned. Foundation planting at corners of building.

Status: (+) 15' h. (2) 1975.

S88. O. (10) 1961. Re construction changes.

Status: Re 1966.

S88. O. (1) 1961.

Status: (+ +) 18' h. (1) 1975.

- S88. O. (1) 1962. Re landscaping changes.  
Status: Re 1968.
- S88. J26. (6) 1963. 1975 3" av. DBH, 15' av. h.  
Ground cover is grass.  
Status: (+) 2"-5" DBH; 10'-25' h. (5) 1975.
- S88. O. (42) 1965. Windbreak screen.  
Status: (+) 1"-2" DBH; 7'-10' h. (21) 1975.
- S88. O. (8) 1967. Screen planting. (2) F 1969  
herbicides, (4) damaged by herbicides.  
Status: (—) 2"-5" DBH; 8'-18' h. (6) 1975.
- S100. O. (11) 1967, 2-2-3 planting stock. Screen  
planting. (6) B&B replacements 1970. Trees  
have been damaged by excessive use of weed killers  
(Paraquat and Simazine). Tips of needles dam-  
aged from drift.  
Status: (—) 5'-10' h. (13) 1975.
- S100. O. (3) 1967, 2-2-3 planting stock. Re land-  
scaping changes.  
Status: Re 1968.
- S100. J10. (2) 1967.  
Status: (+) 3" DBH; 18', 20' h. (2) 1975.
- S100. O. (9) 1970, 8'-10' h. Ts from Arboretum  
nursery with tree spade. Windbreak planting.  
Status: (+) 3" DBH; 14' h. (9) 1975.
- S100. O. (4) 1970, 8'-10' h. Ts from Arboretum  
nursery with tree spade. Underplanting in hard-  
woods.  
Status: (+ +) 2" DBH; 14' h. (3) 1975.
- S100. O. (5) 1970, 3' h. One tree had top broken  
out by heavy 22" snowfall Dec. 1974.  
Status: (+ +) 7'-9' h. (5) 1975.
- S100. T. (13) 1971, 4' h. Ts from Arboretum nurs-  
ery with tree spade. (1) Fm 1973.  
Status: (+) 5'-10' h. (12) 1975.

***Tsuga canadensis*, dwarf sel.**

**Dwarf Canada Hemlock**

- S75. B5. (3) 1970. Ts 1971 construction changes.  
(3) Ts 1974 G3. In nursery 1964 to 1970.  
Status: (+ +) 4'-6' h. (3) 1975.

***Tsuga canadensis* 'Microphylla'**

**Littleleaf Canada Hemlock**

- S10. G3. (1) 1974. Set in Arboretum nursery in  
1964. Ts 1965. (1) Ts 1974 B&B 4' h.  
Status: (+) 4' h. (1) 1975.

***Tsuga canadensis* 'Pendula'**

**Weeping Canada Hemlock**

- S15. B1. (3) 1933, 7-yr. grafts. (1) Fc 1935. (1)

Fc 1936.

Status: Fc 1936.

***Tsuga canadensis* 'Rockland'**

**Rockland Canada Hemlock**

- Suk. G3. (2) 1969, 3' h. (1) Fc 1973, open winter,  
alternate thawing and freezing.  
Status: (+) 8' h. (1) 1975.

***Tsuga caroliniana* Engelm.**

**Carolina Hemlock**

- S9. C3. (2) 1909, 12" h. Survived —24° F., 1912.  
(1) Fw 1933, windthrown. On exposed site.  
Windthrown 1967, staked and cabled.  
Status: (—) 30' h. (1) 1975.
- S45. G30. (3) 1964. (2) 1968. (1) Fc 1973, open  
winter with extremely alternating periods of freez-  
ing and thawing.  
Status: (+) 7' h. (1) 1975.
- S134. C4. (2) 1967. (1) Fd 1974, *Fomes annosus*  
(Fr.) Cke.  
Status: (+ +) 3" DBH; 14' h. (1) 1975.

***Tsuga chinensis* (Franch.) Pritz**

**Chinese Hemlock**

- Suk. H. 1932. Too exposed a site.  
Status: Fs Fp 1932.

***Tsuga diversifolia* (Maxim.) Mast.**

**Japanese Hemlock**

- Suk. O. (6) 1934. (1) 1939. (+ +) 18' h. (1)  
1974. Heavy breakage from 22" snowfall Dec.  
1974. Destroyed shape of tree.  
Status: (—) 16' h. (1) 1975.
- S141. G3. (1) 1974, B&B 6' h. Received 1964 and  
set in Arboretum Nursery.  
Status: (+) 6' h. (1) 1975.

***Tsuga heterophylla* (Raf.) Sarg.**

**Western Hemlock**

- Suk. H. 1930.  
Status: Fc 1934.

***Tsuga mertensiana* (Bong.) Carr.**

**Mountain Hemlock**

- Suk. H. 1930. Too exposed a site.  
Status: Fs Fp 1931.

***Tsuga sieboldi* Carr.**

**Southern Japanese Hemlock**

- S9. B2. 1909. Survived —24° F. in 1912. Fw,  
broken by snow, 1935-36.  
Status: Fw 1936.



## SELECTED REFERENCES

Common and botanical nomenclature follows the references listed below. No one reference contains all plants listed. The Check List of Native and Naturalized Trees of the United States has been used for native trees.

1. Den Ouden, P. and B. K. Boom. 1965. Manual of Cultivated Conifers. Martinus Nijhoff. The Hague.
2. Harlow, William M. and Ellwood S. Harrar. 1958. Textbook of Dendrology. Fourth Edition. McGraw-Hill Book Co., Inc., New York.
3. Little, Elbert L., Jr. 1953. Check List of Native and Naturalized Trees of the United States. Agricultural Handbook No. 41, Forest Service, U. S. Dept. of Agriculture.

## CONVERSION TABLE INCHES TO CENTIMETERS

1 inch = 2.54 centimeters

Inches	Cm.	Inches	Cm.	Inches	Cm.
1	2.5	18	45.7	35	88.9
2	5.1	19	48.3	36	91.4
3	7.6	20	50.8	37	94.0
4	10.2	21	53.3	38	96.5
5	12.7	22	55.9	39	99.1
6	15.2	23	58.4	40	101.6
7	17.8	24	61.0	41	104.1
8	20.3	25	63.5	42	106.7
9	22.9	26	66.0	43	109.2
10	25.4	27	68.6	44	111.8
11	27.9	28	71.1	45	114.3
12	30.5	29	73.7	46	116.8
13	33.0	30	76.2	47	119.4
14	35.6	31	78.7	48	121.9
15	38.1	32	81.3	49	124.5
16	40.6	33	83.8	50	127.0
17	43.2	34	86.4	51	129.5

## CONVERSION TABLE—FEET TO METERS

1 foot = 0.3048 meter

Feet	Meters	Feet	Meters	Feet	Meters
1	0.3	40	12.2	79	24.1
2	0.6	41	12.5	80	24.4
3	0.9	42	12.8	81	24.7
4	1.2	43	13.1	82	25.0
5	1.5	44	13.4	83	25.3
6	1.8	45	13.7	84	25.6
7	2.1	46	14.0	85	25.9
8	2.4	47	14.3	86	26.2
9	2.7	48	14.6	87	26.5
10	3.0	49	14.9	88	26.8
11	3.4	50	15.2	89	27.1
12	3.7	51	15.5	90	27.4
13	4.0	52	15.8	91	27.7
14	4.3	53	16.2	92	28.0
15	4.6	54	16.5	93	28.3
16	4.9	55	16.8	94	28.7
17	5.2	56	17.1	95	29.0
18	5.5	57	17.4	96	29.3
19	5.8	58	17.7	97	29.6
20	6.1	59	18.0	98	29.9
21	6.4	60	18.3	99	30.2
22	6.7	61	18.6	100	30.5
23	7.0	62	18.9	101	30.8
24	7.3	63	19.2	102	31.1
25	7.6	64	19.5	103	31.4
26	7.9	65	19.8	104	31.7
27	8.2	66	20.1	105	32.0
28	8.5	67	20.4	106	32.3
29	8.8	68	20.7	107	32.6
30	9.1	69	21.0	108	32.9
31	9.4	70	21.3	109	33.2
32	9.8	71	21.6	110	33.5
33	10.1	72	21.9	111	33.8
34	10.4	73	22.2	112	34.1
35	10.7	74	22.6	113	34.4
36	11.0	75	22.9	114	34.7
37	11.3	76	23.2	115	35.1
38	11.6	77	23.5	116	35.4
39	11.9	78	23.8		

## SOURCES OF PLANTS

Many of these sources go back to 1903. Some nurseries are no longer in business and some individuals are now deceased. In some instances nurseries have changed names or ownership. A few may have changed their address. Original addresses have been listed. New names or addresses are in parentheses following original addresses.

- S1. American Forest Nursery
- S2. American Forestry Company
- S3. Anderson Nursery, 611 Wooster St., Lodi, Ohio 44254
- S4. Andorra Nurseries, Inc., Chestnut Hill, Philadelphia, Pa. (No longer in business)
- S5. Andrews, D. M., Boulder, Colo.
- S6. Arnold Arboretum, The Arborway, Jamaica Plain, Mass. 02130
- S7. Atholl Forest, Scotland
- S8. Berryhill Nursery Company, Box 696, 4001 Moorefield Rd., Springfield, Ohio 45501
- S9. Biltmore Nursery, Biltmore, N. C. (No longer in business)
- S10. J. Blaauw and Co., Lincroff, N. J. and Boskoop, Holland
- S11. Bobbink and Atkins, 586 Paterson Ave., East Rutherford, N. J. (P.O. Box 124, Freehold, N. J. 07728)
- S12. Bohlender Nursery Co., Tipp City, Ohio (Spring Hill Nurseries Co., Tipp City, Ohio 45371)
- S13. Paul Bosley Nurseries, Inc., 9579 Mentor Ave., Mentor, Ohio 44060
- S14. Brandon, Ed, Westcliff, Colo.
- S15. Bunting's Nurseries, Inc., Dukes St., P. O. Box 306, Selbyville, Del. 19975
- S16. Burke Estate, W. E. Fischer
- S17. C. R. Burr and Co., Inc., Manchester, Conn.
- S18. Burtons Nurseries, Box 83A, Casstown, Ohio 45312
- S19. Carosello Nurseries, 9665 Old Johnny Cake Road, Mentor, Ohio 44060
- S20. Carr Nursery, Yellow Springs, Ohio (No longer in business)
- S21. Cedar Hill
- S22. Chadwick, L. C., 3634 Olentangy Blvd., Columbus, Ohio 43214
- S23. Caulby Estate, Wickliffe, Ohio
- S24. Cold Springs Farm Arboretum
- S25. Cole Nursery Co., Inc., R.D. 1, Circleville, Ohio 43113
- S26. Critchfield Nursery Co., St. Helena, Calif.
- S27. Daisy Hill Nursery, Ohio (No longer in business)
- S28. Deverman, Harry, 461 Van Houten Ave., Clifton, New Jersey
- S29. Diller, O. D., 1368 E. Wayne Ave., Wooster, Ohio 44691
- S30. Donahay, Robert F., Union Commerce Bldg., Cleveland, Ohio
- S31. Donewell Nurseries, 2168 Mentor Ave., Painesville, Ohio 44077
- S32. Eccles Nursery, Drawer Y, Dept. A, Rimersburg, Pa. 16248
- S33. Eddy Tree Breeding Station (U. S. Forest Service, Institute of Forest Genetics, Placerville, Calif.)
- S34. Evergreen Nursery Co., Rt. 3, Sturgeon Bay, Wis.
- S35. Fairview Evergreen Nursery, Box E, 131 E. Water St., Fairview, Pa. 16415
- S36. Ferndale Nursery and Greenhouses, Askov, Minn. 55704
- S37. F & F Nurseries, P.O. Box 362, Holmdel, N. J. 07733
- S38. Finday
- S39. Finland Experiment Station, Finland (Obsolete)
- S40. Forest Nursery Company, Inc., R.F.D. 2, McMinnville, Tenn. 37110
- S41. Forest Research Institute, Mont Alto, Pa.
- S42. French Nursery Co., P.O. Box 116, Clyde, Ohio 43410
- S43. Girard Nurseries, P.O. Box 428, Geneva, Ohio 44041
- S44. Goldsmith, B. C., Shasta National Forest, Calif.
- S45. Green Ridge Nursery, P.O. Box E, Middletown, Ohio 45042
- S46. Groenendael Forest, Brussels, Belgium
- S47. Gwenn-Gary Nursery, Inc., R.F.D. 2, Box 195, Columbiana, Ohio 44408
- S48. Harlow, W. M., New York State College of Forestry, Syracuse, N. Y.
- S49. Heins Nursery, Germany
- S50. Herbst Brothers Seedsman, Inc., 1000 N. Main St., Brewster, N. Y. 10509
- S51. Hess Nurseries, P.O. Box 332, Cedarville, N. J. 08311
- S52. Hicks Nurseries, Jericho Turnpike, Westbury, L. I., N. Y. (No longer in business)
- S53. D. Hill Nursery Co., Dundee, Ill. 60118
- S54. Hilltop Nursery, Casstown, Ohio (See Burtons Nurseries)
- S55. Holden Arboretum, Sperry Rd., Mentor, Ohio 44060
- S56. Hoogendoorn Nurseries, Inc., 408 Turner Rd., Newport, R. I. 02840
- S57. Horton Nurseries, Inc., Rt. 20, 7879 North Ridge Rd., Madison, Ohio 44057
- S58. Imlay Co., Rt. 7, 2750 Maysville Pike, Zanesville, Ohio 43701
- S59. Institute of Applied Biology, Botany and New Cultures, Leningrad, U.S.S.R.
- S60. Institute of Forest Genetics, U.S.D.A., Forest Service, Placerville, Calif.
- S61. Jackson & Perkins Co., P.O. Box 266, Newark, N. Y. (Now growing roses in Calif.)
- S62. Kallay Bros. Co., 1251 Madison Ave., Painesville, Ohio (No longer in business)
- S63. Katzenstein
- S64. Keene Forestry Association, Keene, N. H.
- S65. Kelsey, Harlan P., Highlands, N. J. 07732
- S66. Kern, C. F., Wyoming Nurseries, Wyoming, Ohio (Kern Nurseries and Landscaping, 6099 Milliken Rd., Hamilton, Ohio 45011)
- S67. Kobel Nursery, R.D. 1, West Lafayette, Ohio 43845
- S68. Kohankie, H. A. (Nursery sold to American Garden Products Co.)
- S69. Koontz Nursery, Wooster, Ohio (No longer in existence)
- S70. Korean Forest Experiment Station, Korea (Institute of Forest Genetics, Suwon, South Korea)

- S70a. Lake County Nursery Exchange, Inc., 5052 S. Ridge Rd., Perry, Ohio 44081
- S71. Lakewood Nursery, 18105 Detroit Ave., Lakewood, Ohio 44107 (Horton Nursery Sales Co., 21605 Center Ridge Rd., Cleveland, Ohio 44116)
- S72. Lane Seed
- S73. Leonard Nurseries, Piqua, Ohio (No longer in business)
- S74. LeVasseur Nursery, France
- S75. Littlefield Nurseries, Inc., 217 Centre Ave., Abington, Mass.
- S76. H. Losely & Son Nursery, 3410 Shepherd Rd., Perry, Ohio 44081
- S77. Manbeck & Sons Nurseries, Inc., 233 East Spring Street, New Knoxville, Ohio 45871
- S78. Mayfair Nurseries, R.D. 2, Nichols, N. Y. 13812
- S79. McBeth Nurseries
- S80. Meehan, Thomas B., Drescher, Montgomery Co., Pa. (No longer in business)
- S81. Michigan Forest Service
- S82. Mitiska Nursery, R.D. 2, Amherst, Ohio 44001
- S83. Moon Nursery, William H. Moon Nursery, Yardley, Pa.
- S84. Morton Arboretum, Route 53, Lisle, Ill. 60532
- S85. Musser Forests, Inc., P.O. Box 340, Indiana, Pa. 15701
- S86. W. A. Natorp Co., Cincinnati, Ohio
- S87. Raymond Nelson Tree Nursery, Dubois, Pa.
- S88. Nepco Lake Nursery, Port Edwards, Wis. 54469
- S89. Neuholdensteben, Bezisk, Magdeburg, Germany
- S90. New York State Forest Nursery
- S91. North Central Regional Plant Introduction Station, Ames, Iowa 50011
- S92. Northeastern Forestry Co., Cheshire, Conn.
- S93. Northern Wisconsin
- S94. Nye Branch Nursery, Porter, Pa. 15766
- S95. The Paul Offenberg Nursery Co., 3415 E. Livingston Ave., Columbus, Ohio 43227
- S96. Ohio Agricultural Research and Development Center, Dept. of Entomology, Wooster, Ohio 44691
- S97. OARDC, Dept. of Forestry, Wooster, Ohio 44691
- S98. OARDC, Dept. of Horticulture, Wooster, Ohio 44691
- S99. OARDC, Secrest Arboretum Nursery, Wooster, Ohio 44691
- S100. Ohio Department of Natural Resources, Division of Forests and Preserves, Columbus, Ohio
- S101. O.N.A.
- S102. The Ohio State University, Columbus, Ohio 43210
- S103. Pave K Nursery, White Lake Wis.
- S104. Perkins-DeWilde Nursery, Shiloh, N. J.
- S105. Peterson Nurseries, Inc., 805 Upper Bellbrook Rd., Xenia, Ohio 45385
- S106. A. N. Pierson, Inc., Cromwell, Conn.
- S107. Pikes Peak Nurseries, Box 670, Indiana, Pa. 15701
- S108. Pine Hill Nursery, Homer City, Pa.
- S109. Plumfield Nurseries, Box 410, Fremont, Neb. 68025
- S109a. Pride, Orlando, 523 Fifth St., Butler, Pa. 16001
- S110. Princeton Nurseries, P.O. Box 191, Princeton, N. J. 08540
- S111. Rare Plant Club
- S112. Riverview Nursery Co., McMinnville, Tenn.
- S113. Robbins, E. C., Gardens of the Blue Ridge, Ashford, N. C. 28603
- S114. Russia, U.S.S.R., Vesselo-Bok Dendrology Station
- S115. Schaus Nursery, Mansfield, Ohio
- S116. Schroths, Indiana, Pa.
- S117. Sebian, M., Painesville, Ohio (No longer in business)
- S118. Secrest, Edmund, Wooster, Ohio (Deceased)
- S119. Sherwood Nursery Co., 13020 N.E. Rose Parkway, Portland, Ore. 97230
- S120. Siebenthaler Co., 3001 Catalpa Drive, Dayton, Ohio 45405
- S121. Spring Grove Cemetery, Cincinnati, Ohio (C. R. Runyan)
- S122. Stonebraker, S. L., 2751 Columbus Road, Wooster, Ohio 44691
- S123. Storrs & Harrison (No longer in business)
- S124. Suncrest Evergreen Nurseries, Homer City, Pa.
- S125. Tamaracks Nursery, Hudson, Ohio (No longer in business)
- S126. Tingle Nursery Co., Pittsville, Md. 21850
- S127. U.S.D.A., Forest Service, Southeastern Forest Experiment Station, P.O. Box 3, Olustee, Fla. 32072
- S128. U.S.D.A., Forest Service, Kootenai National Forest
- S129. U.S.D.A., Forest Service, North Pacific Experiment Station
- S130. U. S. National Arboretum, Washington, D. C. 20002
- S131. U. S. Plant Introduction Station, Glen Dale, Md. 20769
- S132. Verkades Nursery, Inc., Box 336, 809 Montauk Ave., New London, Conn. 06320
- S133. John Vermeulen & Son, Inc., Woodfern Rd., Neshean Station, N. J. 08853
- S134. Warner Nursery, R.D. 4, Willoughby, Ohio 44094
- S135. Westbury Rose Nursery Co., Inc., Jericho Turnpike, Westbury, L. I., N. Y. (No longer in business)
- S136. Williams, Isaac Langley, Exeter, N. H. 03833
- S137. Whitney Evergreen Nursery, Warren, Ohio (No longer in business)
- S138. Wing, Charles B., Mechanicsburg, Ohio (No longer in business)
- S139. Zack Nursery
- S140. Zanesville Nursery, Ohio Dept. of Natural Resources, Zanesville, Ohio
- S141. Kingsville Nursery, Kingsville, Md. 21087
- Suk. Source unknown

## GROUND COVER PLANTS

### Underplanted in Plantations

*Euonymus fortunei* 'Colorata' Rehd.  
 Purpleleaf Wintercreeper *Euonymus*  
 A5, A7, A11, J45

*Euonymus obovata* Nutt.,  
 Running *Euonymus*-----J37

*Hedera helix* var. *baltica* Rehd.,  
 Baltic English Ivy-----J36, J38, K26

Ground covers heavy and dense except *Euonymus* in A plots which is heavily infested with scale. In many instances both *Euonymus* and Baltic Ivy are climbing trunks of trees.

## UNDERSTORY PLANTS

The following plants have seeded in naturally underneath plantations in sufficient numbers to be noticeable and forming underbrush or ground cover.

*Acer campestre* L., Hedge Maple-----D10, D35

*Acer ginnala* Maxim.,  
 Amur Maple-----Compartment D

*Acer negundo* L., Boxelder-----Compartment D, L

*Acer plantanoides* L.,  
 Norway Maple-----Compartment D, E, F

*Acer pseudoplatanus* L.,  
 Sycamore Maple-----Compartment D

*Acer rubrum* L.,  
 Red Maple-----All over Arboretum

*Acer saccharinum* L.,  
 Silver Maple-----Compartment E, J, K

*Acer saccharum* Marsh.,  
 Sugar Maple-----All over Arboretum

*Aesculus glabra* Willd.,  
 Ohio Buckeye-----Compartment J, K, L

*Ailanthus altissima* (Mill.) Swingle,  
 Tree of Heaven-----Compartment D, E

*Amelanchier arborea* (Michx. f.) Fern.,  
 Downy Serviceberry-----Compartment J, K

*Aralia spinosa* L., Devils-Walkingstick  
 A24, A25, D10, D35, E5, F21, G6

*Berberis thunbergii* DC., Japanese Barberry  
 Scattered throughout Arboretum

*Carpinus caroliniana* Walt.,  
 American Hornbeam-----K18

*Carya cordiformis* (Wangenh.) K. Koch,  
 Bitternut Hickory-----In thin open stands,  
 Compartments J, K

*Carya glabra* (Mill.) Sweet, Pignut Hickory  
 In thin open stands, Compartments J, K

*Catalpa speciosa* Warder,  
 Northern Catalpa-----A27

*Cornus florida* L.,  
 Flowering Dogwood-----Compartment K

*Cornus rugosa* Lam.,  
 Roundleaf Dogwood-----J45, K2

*Fraxinus americana* L.,  
 White Ash-----A26, A27, D1, K2, K18

*Hydrangea arborescens* L.,  
 Smooth Hydrangea-----Compartment A, J1, K3

*Juglans nigra* L., Black Walnut  
 Scattered throughout Arboretum

*Ligustrum vulgare* L.,  
 European Privet-----A7, J36, J44, J45

*Liriodendron tulipifera* L.,  
 Yellowpoplar-----Compartment D, E, F, J

*Lonicera japonica* Thunb., Japanese Honeysuckle  
 A pest all over the Arboretum

*Lonicera japonica halliana* Nichols,  
 Halls Japanese Honeysuckle  
 A pest all over the Arboretum

*Lonicera tatarica* L.,  
 Tatarian Honeysuckle-----Becoming a pest in  
 many parts of Arboretum, widespread

*Magnolia acuminata* L.,  
 Cucumber tree *Magnolia*-----K26

*Mitchella repens* L.,  
 Partridge Berry-----Ground cover scattered  
 in Compartments C, E, G, J

*Morus alba* L., White Mulberry  
 A12, A26, B14, D14, E11, E32, G11

*Ostrya virginiana* (Mill.) K. Koch,  
 Eastern Hophornbeam-----Compartment J, K

*Parthenocissus quinquefolia* Planch.,  
 Virginia Creeper---General all over Arboretum

*Phellodendron amurense* Rupr.,  
 Amur Corktree-----Compartment G

*Philadelphus grandiflorus* Willd.,  
 Big Scentless Mockorange---Compartment A, K1

*Phytolacca americana* L.,  
 Pokeweed-----Compartment F, G, J

*Prunus pensylvanica* L. f.  
 Fire Cherry, Pin Cherry-----Compartment K

*Prunus serotina* Ehrh.  
 Black Cherry-----General all over Arboretum

*Prunus virginiana* L., Common Chokecherry  
 A27, F22, J37, K2, K3, L

*Ptelea trifoliata* L.,  
 Common Hoptree-----Compartment E, J35, L

*Quercus alba* L.,  
 White Oak---Scattered throughout Arboretum

*Quercus imbricaria* Michx.,  
 Shingle Oak-----Compartment J, K

*Quercus palustris* Muenchh.,  
 Pin Oak-----Compartment K

*Quercus rubra* L., Northern Red Oak  
 Scattered throughout Arboretum

*Quercus velutina* Lam.,  
     Black Oak-----Compartments J, K  
*Rhamnus cathartica* L.,  
     Common Buckthorn-----Compartment F  
*Rhus glabra* L.,  
     Smooth Sumac-----K16  
*Rhus typhina* L.,  
     Staghorn Sumac-----E13, F2, F22, G3  
*Robinia pseudoacacia* L.,  
     Black Locust-----A7, A17, A19, E32  
*Rosa carolina* L.,  
     Carolina Rose-----Compartments D, K20  
*Rosa multiflora* Thunb., Japanese Rose  
     Widespread pest all over the Arboretum  
*Rubus* sp., Blackberry  
     Widespread pest all over the Arboretum  
*Rubus occidentalis* L., Black Raspberry  
     Scattered all over Arboretum, especially numer-  
     ous in Plots A5, A26, F21, F22, G3, J37  
*Sambucus canadensis* L., American Elder, Elderberry  
     Compartments A, D, E, F  
*Sassafras albidum* (Nutt.) Nees,  
     Sassafras-----Common all over the Arboretum  
*Smilax glauca* Walt.,  
     Cat Brier-----Compartments A, F, G, K, J  
*Smilax hispida* Muhlb.,  
     Bristly Greenbrier-----Compartments A, F, G

*Smilax rotundifolia* L.,  
     Common Greenbrier--Compartments A, F, G, K  
*Staphylea trifolia* L.,  
     American Bladdernut-----J35, K19  
*Toxicodendron quercifolium* (Michx.) Greene,  
     Poison Oak-----General all over Arboretum  
*Toxicodendron radicans* (L.) Kuntze,  
     Common Poison Ivy  
     General all over Arboretum  
*Ulmus americana* L.,  
     American Elm-----Compartments J, K  
*Ulmus rubra* Muhl.,  
     Slippery Elm-----Compartments J, K  
*Ulmus thomasii* Sarg.,  
     Rock Elm-----Compartments J, K  
*Viburnum acerifolium* L.,  
     Mapleleaf Viburnum--Compartments J, K, G6  
*Viburnum dentatum* L.,  
     Arrowwood Viburnum----Compartments J, K  
*Viburnum prunifolium* L.,  
     Blackhaw Viburnum----Compartments A, J, K  
*Vitis aestivalis* Michx., Summer Grape  
     Scattered throughout Arboretum  
*Vitis labrusca* L.,  
     Fox Grape----Scattered throughout Arboretum  
*Vitis vulpina* L.,  
     Frost Grape---Scattered throughout Arboretum



## INDEX OF COMMON NAMES

Plants in this publication are in alphabetical order by scientific or technical names. In this index, common names are followed by the appropriate technical name.

Cedar, Atlantic	<i>Cedrus atlantica</i>
Atlas	<i>Cedrus atlantica</i>
Blue Atlas	<i>Cedrus atlantica</i> 'Glaucua'
Deodar	<i>Cedrus deodara</i>
Himalayan	<i>Cedrus deodara</i>
Cedar-of-Lebanon	<i>Cedrus libani</i>
Douglasfir	<i>Pseudotsuga menziesii</i>
Blue	<i>Pseudotsuga menziesii</i> var. <i>glauca</i>
Fir, Algerian	<i>Abies numidica</i>
Alpine	<i>Abies lasiocarpa</i>
Balsam	<i>Abies balsamea</i>
Bornmueller	<i>Abies bornmuelleriana</i>
California Red	<i>Abies magnifica</i>
Caucasian	<i>Abies nordmanniana</i>
Cilician	<i>Abies cilicia</i>
Corkbark	<i>Abies lasiocarpa</i> var. <i>arizonica</i>
Fraser	<i>Abies fraseri</i>
Grand	<i>Abies grandis</i>
Greek	<i>Abies cephalonica</i>
Khingan	<i>Abies nephrolepis</i>
Korean	<i>Abies koreana</i>
Manchurian	<i>Abies holophylla</i>
Maries	<i>Abies mariesii</i>
Momi	<i>Abies firma</i>
Nikko	<i>Abies homolepis</i>
Dimplecone	<i>Abies homolepis</i> var. <i>umbellata</i>
Noble	<i>Abies procera</i>
Blueleaf	<i>Abies procera</i> 'Glaucua'
Nordmann	<i>Abies nordmanniana</i>
Pacific Silver	<i>Abies amabilis</i>
Rocky Mountain	<i>Abies lasiocarpa</i>
Sakhalin	<i>Abies sachalinensis</i>
Silver	<i>Abies alba</i>
Green Spiral	<i>Abies alba</i> 'Green Spiral'
Sentinel	<i>Abies alba</i> 'Pyramidalis'
Spanish	<i>Abies pinsapo</i>
Subalpine	<i>Abies lasiocarpa</i>
Veitch	<i>Abies veitchii</i>
White	<i>Abies concolor</i>
Purplecone	<i>Abies concolor</i> 'Violaceae'
Goldenlarch	<i>Pseudolarix kaempferi</i>
Hemlock, Canada	<i>Tsuga canadensis</i>
Dwarf	<i>Tsuga canadensis</i> , dwarf selection
Littleleaf	<i>Tsuga canadensis</i> 'Microphylla'
Rockland	<i>Tsuga canadensis</i> 'Rockland'
Weeping	<i>Tsuga canadensis</i> 'Pendula'
Carolina	<i>Tsuga caroliniana</i>
Chinese	<i>Tsuga chinensis</i>
Eastern	<i>Tsuga canadensis</i>
Japanese	<i>Tsuga diversifolia</i>
Mountain	<i>Tsuga mertensiana</i>

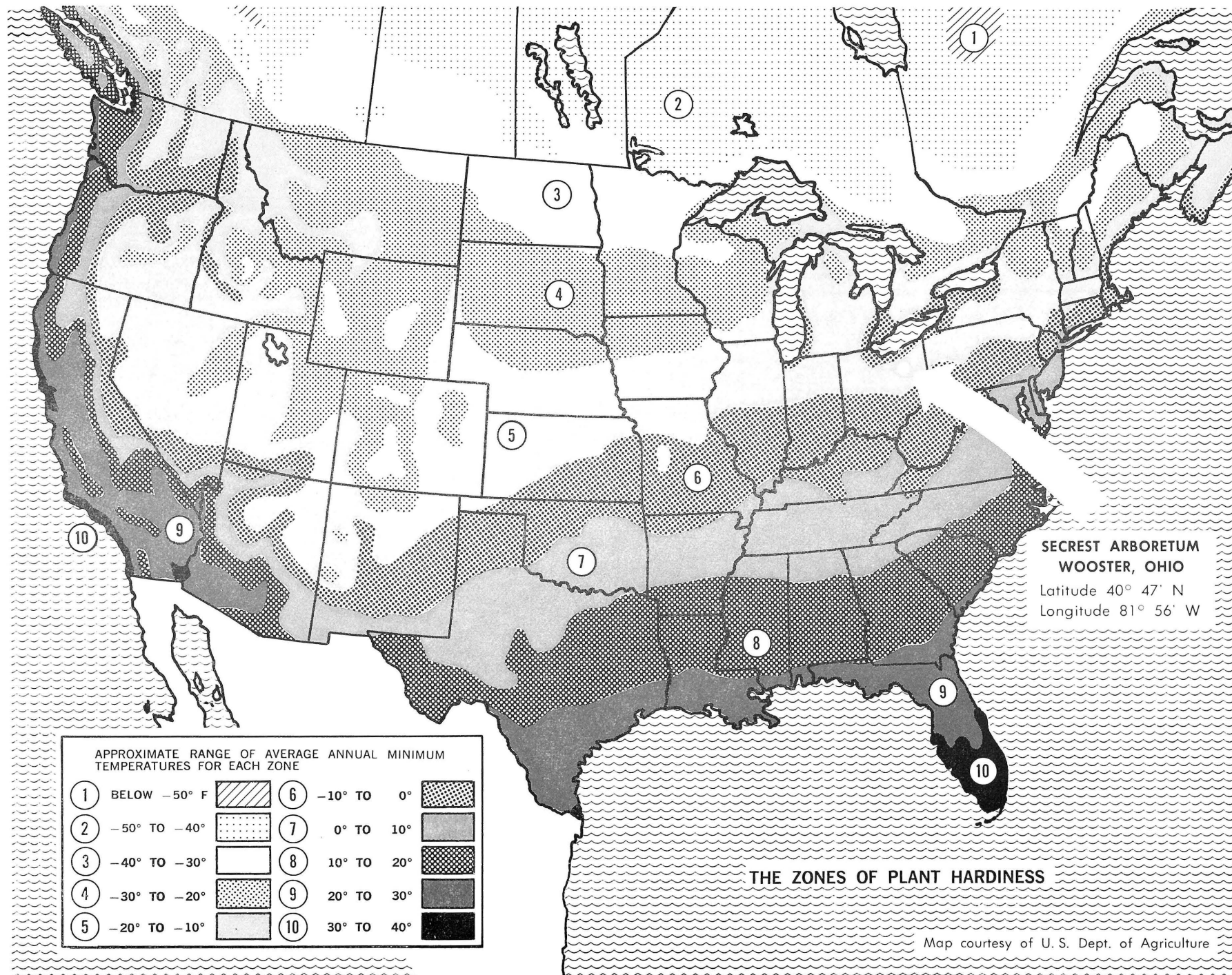
Hemlock, Southern Japanese	<i>Tsuga sieboldi</i>
Western	<i>Tsuga heterophylla</i>
Larch, Dahurian	<i>Larix gmelinii</i>
Kurile	<i>Larix gmelinii</i> 'Japonica'
Prince Rupprecht	<i>Larix gmelinii</i> var. <i>principis-rupprechtii</i>
Dunkeld (Dunkfeld)	<i>Larix</i> x <i>eurolepis</i>
Eastern	<i>Larix laricina</i>
European	<i>Larix decidua</i>
Japanese	<i>Larix leptolepis</i>
Siberian	<i>Larix sibirica</i>
Western	<i>Larix occidentalis</i>
Pine, Aleppo	<i>Pinus halepensis</i>
Erectcone	<i>Pinus halepensis</i> var. <i>brutia</i>
Austrian	<i>Pinus nigra</i>
Balkan	<i>Pinus peuce</i>
Bishop	<i>Pinus muricata</i>
Border White	<i>Pinus strobiformis</i>
Bosnian Redcone	<i>Pinus heldreichii</i> var. <i>leucodermis</i>
Bristlecone	<i>Pinus aristata</i>
Calabrian	<i>Pinus nigra</i> var. <i>maritima</i>
Canary	<i>Pinus canariensis</i>
Chinese	<i>Pinus tabulaeformis</i>
Compact	<i>Pinus tabulaeformis</i> var. <i>densata</i>
Cluster	<i>Pinus pinaster</i>
Corsican	<i>Pinus nigra</i> var. <i>maritima</i>
Coulter	<i>Pinus coulteri</i>
Crimean	<i>Pinus nigra</i> var. <i>caramanica</i>
Digger	<i>Pinus sabiniana</i>
Eastern White	<i>Pinus strobus</i>
Pyramidal	<i>Pinus strobus</i> 'Fastigiata'
Umbrella	<i>Pinus strobus</i> 'Umbraculifera'
Weeping	<i>Pinus strobus</i> 'Pendula'
Foxtail	<i>Pinus balfouriana</i>
Himalayan	<i>Pinus griffithi</i>
Jack	<i>Pinus banksiana</i>
Japanese Black	<i>Pinus thunbergii</i>
Japanese Red	<i>Pinus densiflora</i>
Umbrella	<i>Pinus densiflora</i> 'Umbraculifera'
Japanese Stone	<i>Pinus pumila</i>
White	<i>Pinus parviflora</i>
Jeffrey	<i>Pinus jeffreyi</i>
Knobcone	<i>Pinus attenuata</i>
Korean	<i>Pinus koraiensis</i>
Lacebark	<i>Pinus bungeana</i>
Limber	<i>Pinus flexilis</i>
Loblolly	<i>Pinus taeda</i>
Lodgepole	<i>Pinus contorta</i>
Rocky Mountain	<i>Pinus contorta</i> var. <i>latifolia</i>
Masson	<i>Pinus massoniana</i>
Mexican Pinyon	<i>Pinus cembroides</i> var. <i>edulis</i>
Mugho Swiss Mountain	<i>Pinus mugo</i> var. <i>mugo</i>
Parry Pinyon	<i>Pinus cembroides</i> var. <i>parryana</i>
Pitch	<i>Pinus rigida</i>
Ponderosa	<i>Pinus ponderosa</i>
Rocky Mountain	<i>Pinus ponderosa</i> var. <i>scopulorum</i>

Pine, Red	<i>Pinus resinosa</i>
Scots (Scotch)	<i>Pinus sylvestris</i>
Blue selection	<i>Pinus sylvestris</i> , blue selection
Booneville selection	<i>Pinus sylvestris</i> , Booneville selection
French selection	<i>Pinus sylvestris</i> , French selection
German selection	<i>Pinus sylvestris</i> , German selection
King selection	<i>Pinus sylvestris</i> , King selection
Lapland	<i>Pinus sylvestris</i> var. <i>lapponica</i>
Nye Branch selection	<i>Pinus sylvestris</i> , Nye Branch selection
Pyramidal	<i>Pinus sylvestris</i> 'Fastigiata'
Riga	<i>Pinus sylvestris</i> var. <i>rigensis</i>
Spanish A selection	<i>Pinus sylvestris</i> , Spanish A selection
Spanish B selection	<i>Pinus sylvestris</i> , Spanish B selection
Swedish selection	<i>Pinus sylvestris</i> , Swedish selection
Waterer	<i>Pinus sylvestris</i> 'Watereri'
Shortleaf	<i>Pinus echinata</i>
Siberian Stone	<i>Pinus cembra</i> var. <i>sibirica</i>
Singleleaf	<i>Pinus cembroides</i> var. <i>monophylla</i>
Sugar	<i>Pinus lambertiana</i>
Swiss Mountain	<i>Pinus mugo</i>
Hoopes	<i>Pinus mugo</i> var. <i>rotundata</i>
Mugho	<i>Pinus mugo</i> var. <i>mugo</i>
Shrubby	<i>Pinus mugo</i> var. <i>pumilio</i>
Tree	<i>Pinus mugo</i> var. <i>rostrata</i>
Swiss Stone	<i>Pinus cembra</i>
Tablemountain	<i>Pinus pungens</i>
Torrey	<i>Pinus torreyana</i>
Virginia	<i>Pinus virginiana</i>
Western White	<i>Pinus monticola</i>
Whitebark	<i>Pinus albicaulis</i>
Yunnan	<i>Pinus yunnanensis</i>
Spruce, Alcock	<i>Picea bicolor</i>
Black	<i>Picea mariana</i>
Blue	<i>Picea pungens</i>
Candelabra	<i>Picea montigena</i>
Colorado	<i>Picea pungens</i>
Donahey selection	<i>Picea pungens</i> , Donahey selection
Hoops	<i>Picea pungens</i> 'Hoopsii'
Koster	<i>Picea pungens</i> 'Koster'
Moerheim	<i>Picea pungens</i> 'Moerheimi'
Montgomery	<i>Picea pungens</i> 'Montgomery'
Dragon	<i>Picea asperata</i>
Bigcone	<i>Picea asperata</i> var. <i>ponderosa</i>
Engelmann	<i>Picea engelmannii</i>
Himalayan	<i>Picea smithiana</i>
Indian	<i>Picea smithiana</i>
Jones selection	<i>Picea</i> sp., Jones selection
Koyamai	<i>Picea koyamai</i>
Likiang	<i>Picea likiangensis</i>
Norway	<i>Picea abies</i>
Drooping	<i>Picea abies</i> 'Inversa'
Golden	<i>Picea abies</i> 'Aurea'
Iowa	<i>Picea abies</i> 'Iowa'
Maxwell	<i>Picea abies</i> 'Maxwellii'
Nest	<i>Picea abies</i> 'Nidiformis'

Spruce, Pyramidal Norway_____	<i>Picea abies</i> 'Pyramidata'
Remont_____	<i>Picea abies</i> 'Remontii'
Oriental_____	<i>Picea orientalis</i>
Red_____	<i>Picea rubens</i>
Sakhalin_____	<i>Picea glehni</i>
Schrenk_____	<i>Picea schrenkiana</i>
Serbian_____	<i>Picea omorika</i>
Siberian_____	<i>Picea obovata</i>
Sitka_____	<i>Picea sitchensis</i>
Tigertail_____	<i>Picea polita</i>
White_____	<i>Picea glauca</i>
Alberta_____	<i>Picea glauca</i> var. <i>albertiana</i>
Black Hills_____	<i>Picea glauca</i> 'Densata'
Blueleaf_____	<i>Picea glauca</i> 'Coerulea'
Dwarf Alberta_____	<i>Picea glauca</i> 'Conica'
Wilson_____	<i>Picea wilsoni</i>
Yeddo_____	<i>Picea jezoensis</i>
Tamarack_____	<i>Larix laricina</i>

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# *The State Is the Campus for Agricultural Research and Development*



Ohio's major soil types and climatic conditions are represented at the Research Center's 12 locations.

Research is conducted by 15 departments on more than 7000 acres at Center headquarters in Wooster, seven branches, Green Springs Crops Research Unit, Pomerene Forest Laboratory, North Appalachian Experimental Watershed, and The Ohio State University.

Center Headquarters, Wooster, Wayne County: 1953 acres

Eastern Ohio Resource Development Center, Caldwell, Noble County: 2053 acres

Green Springs Crops Research Unit, Green Springs, Sandusky County: 26 acres

Jackson Branch, Jackson, Jackson County: 502 acres

Mahoning County Farm, Canfield: 275 acres

Muck Crops Branch, Willard, Huron County: 15 acres

North Appalachian Experimental Watershed, Coshocton, Coshocton County: 1047 acres (Cooperative with Agricultural Research Service, U. S. Dept. of Agriculture)

Northwestern Branch, Hoytville, Wood County: 247 acres

Pomerene Forest Laboratory, Coshocton County: 227 acres

Southern Branch, Ripley, Brown County: 275 acres

Western Branch, South Charleston, Clark County: 428 acres